


Diagnostic report for each follower city

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Table of Contents

1. Executive Summary.....	7
2. Introduction.....	8
3. Brussels	19
3.1. Introduction	19
3.2. The city.....	23
3.2.1. Territorial description	24
3.2.2. Social description	44
3.2.3 Economic description	48
3.2.4 Conclusion / Synthesis	58
3.3. Parishes/quarters levels: Neder-Over-Heembeek : Versailles, Val Maria and Craetbos	60
3.3.1 Territorial description	63
3.3.2. Social description	78
3.3.3. Economic description	85
3.3.4 Conclusion / synthesis.....	89
3.4. Stage 2 - Local diagnostic report: methodologies	91
3.4.1 The first stage of the Local Diagnostic	91
3.4.2 Design of the research plan for the second stage of the follower cities' local diagnostics.....	91
3.4.3 Conclusion / Synthesis	116
3.5. Nature based solutions.....	122
3.5.1. NBS policy in Brussels.....	122
3.5.2. Territorial Nature Based Solutions	123
3.5.3. Technological Nature Based Solutions	127
3.5.4. Participatory NBS	129
3.5.5. Social and Solidarity economy	133
3.6. Baseline for the development of the healthy corridor.....	138
3.7. Conclusion.....	142
3.8. Annexes	143
3.8.1. Overview of NBS projects in Neder-Over-Heembeek	143
3.8.2. Overview of workshops conducted in the field.....	147
4. Høje-Taastrup.....	150
4.1. Introduction	150
4.2. The city.....	151
4.2.1. Territorial description	151
4.2.2. Social description	162
4.2.3 Economic description	170
4.3. Parishes/quarters levels	173
4.3.1. Territorial description	173
4.3.2. Social description	186
4.3.3. Economic description	191

4.4. Stage 2 - Local diagnostic report: methodologies	195
4.4.1 The first stage of the Local Diagnostic	195
4.4.2 Design of the research plan for the second stage of the follower cities' local diagnostics.....	198
4.4.2.1. Walkthrough	200
4.5 Nature based solutions.....	219
4.6 Baseline for the development of the healthy corridor.....	225
4.7. Conclusion.....	226
5. Nova Gorica (and Gorizia).....	228
5.1. Introduction	228
5.2. The city.....	235
5.2.1. Territorial description	236
5.2.2. Social description	249
5.2.3 Economic description	262
5.3. Parishes/quarters levels	283
5.3.1. Territorial description	283
5.3.2. Social description	292
5.3.3. Economic description.....	294
5.4. Stage 2 - Local diagnostic report: methodologies	299
5.4.1 The first stage of the Local Diagnostic - lessons learnt	299
5.4.2 Design of the research plan for the second stage of the follower cities' local diagnostics.....	301
5.5. Nature based solutions.....	329
5.5.1. Territorial Nature Based Solutions	330
5.5.2. Technological Nature Based Solutions	335
5.5.3. Participatory NBS	336
5.5.4. Social and Solidarity economy	337
5.6. Baseline for the development of the healthy corridor.....	339
5.7. Conclusion.....	340
6. Siena	342
6.1. Introduction	342
6.2. The city.....	344
6.2.1. Territorial description	346
6.2.2. Social description	360
6.2.3 Economic description	369
6.3. Parishes/quarters levels	375
6.3.1. Territorial description	375
6.3.2. Social description	393
6.3.3. Economic description.....	405
6.4. Stage 2 - Local diagnostic report: methodologies	406
6.4.1 The first stage of the Local Diagnostic	408
6.4.2 Design of the research plan for the second stage of the follower cities' local diagnostics.....	409

6.5. Nature based solutions	448
6.5.1. NBS policy in Siena	448
6.5.2. Territorial Nature Based Solutions	449
6.5.3. Participatory NBS	449
6.5.4. Social and Solidarity economy	451
6.6. Baseline for the development of the healthy corridor	452
6.7. Conclusion	455
7. Khorramabad	457
7.1. Introduction	457
7.2. The city	461
7.2.1. Territorial description	464
7.2.2. Social description	470
7.2.3 Economic description	471
7.3. Parishes/quarters levels	474
7.3.1. Territorial description	474
7.3.2. Social description	478
7.3.3. Economic description	489
7.4. Stage 2 - Local diagnostic report: methodologies	491
7.4.1 The first stage of the Local Diagnostic	492
7.4.2 Design of the research plan for the second stage of the follower cities' local diagnostics.....	496
7.5. Baseline for the development of the healthy corridor	511
7.6. Conclusion	511
8. Reference	512

1. Executive Summary

The Local Diagnostic (LD) Stage 1&2 reports for the follower cities of the URBiNAT project follow the example of the LD reports from the frontrunner cities, submitted in December of 2019 under Deliverable 2.1. The purpose of the follower city diagnostics is to conduct an in-depth analysis of current urban conditions in all four intervention areas, plus the study site of Khorramabad. The observer city Khorramabad has been actively involved in all URBiNAT activities, implemented URBiNAT citizen engagement and participation methodologies and facilitated a project visit for all URBiNAT partners to learn and apply co-creation and co-participation models for successful urban regeneration initiatives in the study area.

Over the course of the last two years, regular meetings have been held with the follower cities to, on the one hand, keep updated on latest developments and, on the other hand, to showcase best-practice examples from frontrunner city partners. Representatives of the frontrunner cities were invited to demonstrate successful co-creation and co-implementation methods from their own field work. Due to the Covid pandemic, physical visits to the cities were very restrictive. Therefore, only two follower city visits to Siena were feasible. One visit was a technical meeting in autumn of 2020 with mostly Italian partners to involve with residents and exchange ideas on redevelopment procedures. The second meeting was in November 2021 where the URBiNAT consortium meeting was conducted. As part of the meeting, the intervention sites of Siena were visited by representatives of all frontrunner and follower cities. The plan for the healthy corridor implementation were presented and a vital exchange of knowledge in relation to best-practice urban regeneration methods were exchanged between city partners. Even though all cities are very diverse when it comes to culture and language and even city structure, there are commonalities within the challenges they are facing, for example to implement bottom-up approaches for successful citizen participation projects for urban regeneration and to build the healthy corridor. By conducting the local diagnostic reports, delivered by all frontrunner and follower cities, we can identify and compare approaches that have proven to be successful when interacting and engaging with locals for the benefit of the redevelopment process.

The aim of this document is to provide an overview of the first stage of the LD, which is focused on the territorial, social and economic description, and the second stage of the LD, which is describing the implementation of co-creation methods designed under the URBiNAT project. Additionally, more cities developed and conducted citizen participation methods under the umbrella of the URBiNAT methodology to fit their specific site area. These methods are also being mentioned in this document. It needs to be addressed that the second stage has been difficult to conduct in almost all follower cities due to lockdown regulations and other Covid related challenges. Fortunately, the situation has improved in all study cities of the project, and therefore citizen participation methods will proceed to be conducted within the upcoming months.

2. Introduction

The URBiNAT project aims to analyse different areas of the cities, to identify the deprived ones, and to rebalance the different city areas.

Porto, Nantes and Sofia are the ‘front runners’ cities of the project, based on their innovative use of public space through nature-based solutions (NBS).

Siena, Nova Gorica, Brussels and Høje-Taastrup, sharing ‘front runners’ knowledge and replicating URBiNAT concepts and methodologies, are acting as ‘followers’.

Most cities and urban communities, including the members of URBiNAT, face specific challenges that relate to:

- i) poor air quality (Nantes, Brussels, Sofia);
- ii) heat island effects (Nantes, Porto, Siena, Brussels);
- iii) increased frequency/severity of extreme events, such as floods, droughts, storms and heat waves (Nova Gorica);
- iv) derelict industrial sites (Sofia, Siena, Nova Gorica, Brussels);
- v) malfunctioning urban areas (Porto, Nantes, Sofia, Siena, Nova Gorica, Høje-Taastrup);
- vi) increased criminality, social exclusion, inequalities, marginalisation, the poor availability of healthy food for low-income groups, as well as poverty (Porto, Nantes, Sofia, Siena, Brussels, Nova Gorica, Høje-Taastrup); and
- vii) increasing health problems (Porto, Nantes, Siena, Nova Gorica, Høje-Taastrup)

Frontrunner cities were chosen considering their previous experience in public space with NBS and level of political commitment. Follower cities were chosen considering their initiative and willingness to collaborate and re-apply the NBS implementation, according to their potentialities. Cities engage in the project through their urban planning, environment, housing, and innovation offices, considering the necessity of creating living labs to implement a healthy corridor with NBS in social housing neighbourhoods. To articulate the research and strategic level with the municipalities and with future local associations, the consortium identified local partners at universities, research centres, and companies with experience in activating participatory process.

Each follower city has a role in the URBiNAT project due to some reasons.

Brussels was chosen for its green character, its history of involvement in European and international agreements and cooperation, and its current practice of citizen participation in political processes.

Siena for its cultural heritage and surrounding rural landscape: the city is the capital of Gothic art and, since 1995, has been a UNESCO World Heritage Site. In Siena, craftsmanship, gastronomy, and wines reach excellence and carry a message of culture and tradition.

Nova Gorica was selected for its strong need to reconnect people and the history of the area. The city of Nova Gorica has a relatively short history. Its foundation dates back to 1946, when the newly born Yugoslavia established a new city as a response to cut off of its population related to the new border designed after the end of the Second World War and dividing the country to Italy, thus cutting out the city of Gorizia and its surrounding. Suddenly an area of a bilingual community was divided into 2 different areas, with strict restrictions in the crossing of the border. Such division increased, along the decades, the frictions between the two populations that were also reflected in

the socio-economic structures. Both cities are presently working jointly to solve the criticalities and disparities and this effort was institutionalised by the establishment in 2010 of the EGTC, European Group for Territorial Cooperation, among border municipalities of Gorizia, Nova Gorica and Šempeter.

Høje-Taastrup Municipality will act as a “Follower” city in the current project with the desire to share its successful urban regeneration experiences with other cities as well as learning best practices that will reinforce the implementation of its ongoing plans. The Municipality has a rich tradition of working through inclusive citizens groups, housing associations, public-private partnerships and financial institutions to bring required solutions to its urban development plans.

This study describes the methods of local diagnosis in the selected follower cities. As planned, after the FrontRunner cities, also the Follower ones activated, designing, implementing, and performing the Local Diagnostic, by using the experience gained by the partners of the project.

Conforming to the first local diagnostic reports stage 1&2, focused on the three frontrunner cities (D2.1), this deliverable 2.6 is a compromised document depicting local conditions and diagnostic analysis of the four follower cities of the URBiNAT project (Brussels, Høje-Taastrup, Nova Gorica, and Siena) plus one of the observer cities, Khorramabad in Iran. Khorramabad has shown active participation in the URBiNAT project from the very beginning and included several co-creation methodologies in their intervention area. Therefore, WP2 partners have decided to include the city in the local diagnostic analysis: this gives also the chance of comparing a non-European city results to the European cities.

The city of Khorramabad in Lorestan province fit well in the URBiNAT project due to its rich natural and cultural features.

The principal purpose of the Local Diagnostic is the description of the local conditions, including the existing practices and competences on the NATURE BASED SOLUTIONS (NBS), in order to identify the deprived areas in each city.

Following the frontrunners’ methodology, with the aim to consider each city as an entity with many connected aspects, a multidisciplinary approach has been applied both by the follower city and the observer¹.

Due to the profound differences of all the involved cities when it comes to culture, tradition, language, history, political systems, and urban design, it is crucial to apply an interdisciplinary methodological approach when evaluating different areas. The transdisciplinary in the Local Diagnostic of the URBiNAT project is crucial since this task involves many experts in very different fields and sectors. The requested tools to complete this task regard urbanists, architects, economists, sociologists, statistics, jurists, engineers, and scientists.

The evaluation of alternative scenarios is a complex decision problem where different aspects need to be considered simultaneously, taking into account both technical elements, which are based on empirical observations, and non-technical elements, based on social visions, preferences and feelings (Ferretti et al., 2016).

In particular, the analysis that has been developed in this document on one hand focus on questions that calls for multi-dimensional systems, multi-level perspectives and multi-actor evaluation; on

¹ A multidisciplinary approach draws appropriately from multiple disciplines redefining problems outside of normal boundaries and reaching solutions based on a new understanding of complex situations.

the other hand, employs both qualitative driven approaches for exploring the general problem and quantitative driven approaches for better investigating alternative options and performances and uses multiple methods to benefit of synergic effects (Creswell et al, 2011). Thereby, the required information to be collected is very broad and overarching.

All the information provided allows the actors of the URBiNAT project – i.e., project partners, local experts, and local stakeholders, including citizens - to easily understand the urban environment and better understand data to conduct the participatory activities of co-design of healthy corridors. In this document are included the same indicators used to analyse the Frontrunner cities. The experience with and in the Frontrunner cities on the collection, implementation, analysis, and communication of the data has been shared with the Follower cities in several online seminars: this sharing of expertise has facilitated the activity of the followers because of this coaching and lessons learnt also by the stakeholders involved in the frontrunner activities.

The local Diagnostic has been divided into two different stages: the first one basically regards the design, the planning, and the implementation of the data to be collected by the cities: data requested to the cities in this step are data already available, through Official Institutions or by Municipality Departments or by third parties. In the second stage, the cities must directly collect new data not already available, through the help and the supervision of the URBiNAT partners involved.

The first stage of the local diagnostic includes an overall description of the city itself and a detailed analysis of the parishes/quarter levels under investigation: as for the frontrunner cities, also the follower selected a specific problematic area at parishes/quarter levels with the aim to deeply investigate its characteristics. This analysis generates a holistic picture of all parameters necessary for the development of a healthy corridor within the city and its intervention area.

The data collection has been performed by municipal and regional institutions that, under the guidelines and the coordination of the Task Leader and the Working Package Leader, assembled the big amount of data useful for the project URBiNAT.

The applied multidisciplinary approach was made possible by the availability of a large data set provided by the city during the two stages of local diagnostic. The considered data are classified into three main categories in order to cover all relevant aspects and to catch as many dimensions as possible of the cities. All this information can help to identify study areas where healthy corridors can be implemented, improving the quality of life of the people.

The three categories of data for each city regard:

- a Territorial description
- a Social description
- an Economic description.

Each variable gives important details to understand the real situation of the city, since it reveals a feature of the municipality.

The Territorial data are basically necessary to draw a detailed picture of the physical and morphological information of the area of the considered city. Moreover, in this first category, many

other variables have been requested to achieve information on the existing infrastructures: the general overview of the urban area allows for understanding the main characteristics of the urban environment including both built and green areas. In particular, to support the determination and enforcement of healthy corridors, the main topics covered by the territorial data regard the following items:

- Climate and Urban Environment
- Biophysical characterization
- Land use/ land cover
- Transportation network (urban dynamics)
- Green structure and Biodiversity.

As for the frontrunner, the requested Territorial data can address five of the first six challenges described in the Eklipse Framework (cfr 1): more in details, the challenges:

- the Contribution of NBS to Climate Resilience (Challenge 1),
- the Water Management (Challenge 2),
- the Coastal Resilience (Challenge 3),
- the Green Space Management (including enhancing/conserving urban biodiversity) (Challenge 4),
- the Urban Regeneration (Challenge 6),

can be approached by using the information in this section.

The collection of Social data has the aim to define the social profile of the urban agglomerate and of the context to delineate the general and the local weaknesses and threats. The availability of these social data helps to determine possible links between problems and solutions in the URBiNAT NBS catalogue combinations.

Given the intrinsic difficulty of analysing the social phenomena, the availability of the local data and the support of local stakeholders, may facilitate the analysis and the comparisons with more specific urban data.

The set of Social data ranges from an overall assessment of the society as per traditional statistical information, as gender, life expectancy, degree of education, population distribution, social inclusion, etc., which offer a general scenario on the expectations of the local population, to more specific information, as the cultural rate, the trust on institutions, justice access, etc. that may on the opposite offer perspective on the potential contribution of citizens to the URBiNAT actions.

The set of Social data requested are mainly divided into the following four macro-categories:

- Demography
- Safety and health
- Participation
- Public services

The requested Social data can approach the challenges 7, 8 and 9 of the Eklipse Framework (cfr. 1). These three challenges are:

- the Participatory Planning and Governance (Challenge 7);

- the Social Justice and Social Cohesion (Challenge 8)
- the Public Health and Well-being (Challenge 9).

The economic data provide information about the economic development of the city, referring both to the standard economic indexes and new indicators which can help the project URBiNAT to better evaluate the real situation of the city from an economic perspective. The economic data collected take into account the degree of competitiveness in the cities and their capability to create, maintain and redistribute the wealth among the own inhabitants. There is also an important focus on the workforce and the conditions of workers in the different sectors. The innovation level, the research of innovative procedures and the amounts of the investments related to modernization are other data fundamental in the Local Diagnostic, since they can provide very important information on the “state of health” of the cities.

The data requested to the cities allow to depict a detailed picture of the economic situation of the city, and to identify the deprived areas of the cities. In such areas, the healthy corridors planning in the URBiNAT project can be implemented, with the purpose of improving the quality of life of the people.

The topics covered by the economic data basically are:

- Income and poverty
- Employment
- Innovation
- Activity sectors
- Facilities

The Challenges of the Eklipse Framework (cfr 1), approached by the considered economic data are basically two:

- the Social Justice and Social Cohesion (Challenge 8)
- the Potential for Economic Opportunities and Green Jobs (Challenge 10).

In order to perform statistical and socio-economic analysis the cities collected data at two different scales: the first one is the city level, the second one is the chosen parishes/quarter level.

Data availability at these two different levels of investigation allow comparisons among different areas of the city.

Particularly:

- the City Level Data are very useful to provide an overall description of the city and of its features. They can help to understand the situation of the cities, the real living conditions of inhabitants, and to make comparisons among the different cities involved in the URBiNAT project.
- The Parishes/quarter Level Data provide characteristics of different areas of the same city.

Each follower city identified a study area at parishes/quarter level where they implement healthy corridors to improve territorial, social and economic conditions.

More in details:

- The neighbourhood of Neder-Over-Heembeek, and more specifically the sub-neighbourhoods of Versailles, Val Maria, and Craetbos, were selected as the study area due to their ex-centred nature within the Brussels geography. Located in the northernmost corner of the Brussels Capital Region, NOH is wedged in between the canal, the royal domain, and the ring road: all rather non-porous barriers that have created a physical and social sense of isolation for inhabitants of this neighbourhood, leading to a growing sense of abandonment and mistreatment. These neighbourhoods have shown up in socioeconomic indicators at a regional level as particularly marked by inequalities and poverty rates.
- Siena focused on a neighbourhood, namely Ravacciano, close to the old city and the green valley in-between, namely Ravacciano' Valley. Despite the good state of conservation, the valley has limited accessibility and the neighbourhood looks disconnected from the green area and from the city. The implementation of strategies for the development of healthy corridors connecting the neighbourhood and the city throughout the green valley is highly desirable, especially improving the ecosystems services that can be performed based on new cultural nature-based solutions.
- Nova Gorica selected the Koren stream. The situation for the application of URBINAT in Nova Gorica was relatively different from the other cities in the partnership. The city is small², and does not have specific criticalities such as criminality, social injustices, etc., but has a strong need to reconnect people and the history of the area. In this respect the corridor of URBINAT should act as a socio-cultural catalyst for the populations of both sides, enhancing the cultural and environmental underused spots along the border. The use of the Koren stream as focus of the corridor is emblematic considering that water is always an attractive element, which was in this case forgotten regardless of its centrality. The purpose was to revitalise a neglected part of the city and increase the use by inhabitants. The further development of the corridor derives from the need to give value to other cultural spots in the area that are underused, as the Kostanjevica hill, the path through the Rafut Villa and other pedestrian ways towards Gorizia centre and back.
- Høje-Taastrup focused on the Gregersen, with a new vision plan for the deprived area of Gadehavekvarteret, entitled "Knowledge City - Vision Plan for Gregersens Kvarter". Gregersen is built in a classical, modernistic style typical of the Northern European tradition. The neighbourhood is located close to the centre of Høje Taastrup, only 600 metres from the train station. However, traffic arteries separate the neighbourhoods from the surrounding city on all four sides and there is a need to improve the cohesion between Gregersen and the surrounding areas. In Gregersen there are many residents

² 25.000 inhabitants plus the 35.000 of Gorizia.

outside the labour market, without or with little education, and many with low incomes, so that the socio-economic development of the neighbourhood remains a challenge.

- The old neighbourhoods of Khorramabad, despite their antiquity and historical, natural, cultural and countless potential, have not had the good fortune of the past due to recent negligence and lack of services, and have lost their native inhabitants. Near the old neighbourhood of Khorramabad, some deprived neighbourhoods have appeared that face many problems such as addiction, poverty of residents and so on. Due to the existence of numerous potentials and the desire of residents to improve their living conditions, some old neighbourhoods (Pasangar, Zayn Ibn Ali, Baba Taher, Hakim, Posht Bazar, Bajgiran and Gelsefid) have been selected as the study areas.

With the data at these two levels, the Local Diagnostic can be more detailed, since many interesting statistical analyses can be performed. Such analyses are crucial:

1. to identify unknown relationships among the variables;
2. to discover relationships among the areas;
3. to create new scenarios by simulations;
4. to contextualize the observed data in a more general picture.

The identification of unknown relationships among the variables is an important task, since it allows us to better understand many social and economic phenomena. The basic idea is to investigate the roles of all the variables and to find all the existing (if there are) links among them. Together with the discovery of relationships among different areas, this first two points can be obtained by the application of quite complex statistical methods. As example, here it is worth mentioning the classical “cluster analysis”, but also the more recent “biclustering analysis”, that permits at the same time to discover similarities among a set of variables and local coherences over a subset of conditions.

By the implementation and the realization of simulations, the Local Diagnostic can provide the creation of new scenarios. The basic idea is to define one (or also more than one) response variable and to identify a set of variables which can explain the behaviour of the variable response. The new scenarios can be modelled by a classical statistical regression of the variables, but not only: the relationships among the variables can also be not linear, and therefore more complex statistical tools can be used in order to forecast their behaviour in simulated situations.

Finally, the contextualization of the observed data is a crucial point to be taken into account. In such a task it can occur to register a change of a variable and to identify a set of variables that can be the cause of such change. In these situations, it is very important to insert into the analysis other external variables which can help to verify whether the cause-effect relationship holds or not. This double check is useful, and it must be performed in order to rely on the results of the analysis.

The data to be collected at parish and neighbourhood level are almost the same ones collected at general city level. The purpose is to have data at a lower level, for assessing areas in the city. These data will be also useful for the study of the corridors, the contextualization of specific city areas in the wide city context.

The second stage of the local diagnostic is listing and reflecting on the URBiNAT methodologies conducted in the intervention neighbourhood with residents and URBiNAT partners. In contrast to traditional urban research efforts, which explore the city from a systemic point of view, questions of where, when, and how people respond to and interact with their urban environments are receiving increasing attention from a subjective and quantitative methodological viewpoint (Resch et al., 2020). Such questions allow researchers to derive deeper insights into how well a city serves its inhabitants, particularly concerning liveability (Kovacs-Györi et al., 2019), quality of life (Frick et al., 2013), and urban wellbeing (Pykett et al., 2019).

Over the last two and a half years, on-site visits and regular online meetings enabled the follower cities to stay updated on urban regenerative processes, including the adoption of co-creation methods, and conduction of in-situ workshops and interviews.

In addition, some cities have developed their own methods and adapted to the co-creation process used in URBiNAT. Both methodological approaches and research are being included in the second stage of LD. The aim is to draw upon lessons-learned from the inclusion of a methodological analysis of citizen's needs, demands, and wishes for the neighbourhood they are living in. Moreover, the methods are used to create a sense of co-ownership for the NBSs developed within the intervention areas.

The Stage 2 consists of many activities performed with the purpose to collect new data on the processes related to the URBiNAT project. That data are collected in the area where it is planned to build the healthy corridor, and eventually in the close areas around it.

The second stage of the local diagnostic was an essential element for having a first contact with local stakeholders, and to begin to build a community of interest and integrate URBiNAT within the local context of the study and intervention area. This section was dedicated to describing the set of participatory activities used to perform the co-diagnostic and feed the following phases of co-design and co-selection of NBS. All the activities were proposed and validated within the collective work in the workshops/community meetings.

Engaging inhabitants and stakeholders in activities guided by the common consortium protocols allowed for a particular sensitivity to place, and to take the time to be present in the field (essential for building networks and trust relations).

Thus, following the ethos of URBiNAT in engaging in a process of co-creation from start to finish, it was necessary to begin this engagement of building common understandings, visions, and dreams, beginning necessarily with co-diagnosing together³. The design of the research process for the co-diagnostic attempted to align itself as closely as possible with the analytical framework developed by the consortium.

The partners involved in the Stage 2 of the Local Diagnostic set up a list of activities and of methods to conduct the analyses. The list is the following one:

- Cultural mapping
- Behavioral mapping
- Walkthrough

³ As Brussels report specifies: *In french, this part of the process was more commonly referred to as the “analyse partagée du territoire”: a shared analysis of territory/place.*

- Photovoice
- Focus group
- Face-to-face interviews
- Questionnaire
- Laboratory analyses
- Territorial Mapping.

For the proposed methods a protocol has been implemented, in order to coordinate and to make the activities homogenous in all the involved cities.

In most cases, it was necessary to adapt some of the protocols developed in order to adapt to the local context, particularly considering the Covid-19 epidemic, which upturned many of the possibilities for life-as-usual, including the URBiNAT project.

The participatory activities, scheduled during the 2020, were strongly affected by the restrictions due to the Covid 19 pandemic, so most of them were postponed when attendance was allowed (focus groups, interviews, etc..).

However, due to the time-consuming and costly methodologies and restricted budgets, not each method has been applied by all Follower Cities.

Due to the Covid Pandemic, some of the tasks that were initially intended to be conducted had to be postponed,

The monitoring and evaluation process has been challenged significantly by the pandemic as field visits were very limited due to travel restrictions, lockdown regulations, and other precautionous health-related measurements. Citizen participation, including local workshops, walk-throughs, face-to-face interviews, photo voice, and other URBiNAT methods could not or only partially conducted. The monitoring and evaluation activities have therefore been restricted to collecting city and peripheral data on the Observatory Platform

In this document the cities have not yet implemented all the methods, while it emerges the need to have more time to complete their analysis. It is certain though that the methodologies could be performed also after the reporting period, for the sake of the plan for the corridor. Despite the difficult period some follower cities have managed to implement their own methods.

After these two fundamental steps the aim is to promote the co-creation, co-development, co-implementation, and co-assessment of solutions that are inspired by nature and human nature.

URBiNAT has compiled a set of Nature-Based Solutions (NBS) can be co-selected and co-created and, in some cases, turned into New NBS, by citizens in URBiNAT intervention areas.

The URBiNAT NBS Catalogue consists of four categories of NBS:

- Territorial and Technological NBS, including nature-inspired products and services, and urban infrastructure projects.
- Participatory and Social & Solidarity Economy NBS including processes and services, putting in dialogue the physical structure and the social dimension of the public space.

In combining physical and infrastructural solutions with social and economic practices the aim is to build collective awareness on commonalities, both material and immaterial, and to raise collective understanding of the human and non-human urban dimensions.

On the basis of this diagnostic and the process that has fed into it, a more analytical understanding can be presented of the types of interventions that are envisaged in each city.

For instance, Brussels focused on connectivity between fragmented spaces: focused interventions might increase the fluidity and interconnection between the identified sites, leading potentially to territorial NBS proposals. Second, this follower focused on conviviality in public space, as a vehicle for social cohesion, and therefore creating spaces of potentiality (re/generative spaces), which may lead to SSE and participatory NBS proposals. The third step is preserving what is already deemed positive or worth preserving, and thus focusing on heritage, both cultural and environmental (e.g. agricultural), without staying stuck in or bound to an imagined or narrated history.

For Siena the collection of the dataset that gave life to LD2, took place in a process where the participation of different local actors mobilized the necessary synergies to allow co-selection and co-decision of the NBS. The development of green areas and the development of sociality in regenerated public spaces are closely connected, arising a virtuous circle that feeds self-development and well-being of everybody.

The final goal of the Local Diagnostic is to provide a baseline for the design of the Healthy Corridors, through a reflection on territorial, social and economic local challenges, needs and expectation of inhabitants and stakeholders, and community assets and urban capital.

This stage was useful also for the followers that have not yet reached any conclusions. As Nova Gorica specified in its document plans in the area can be made at any moment, making the effort of URBiNAT. Collaborating with people means getting inspired, but also inspiring and showing what others are doing towards a more sustainable territorial development that breaks the rooted schemes. The corridor of Nova Gorica can be a media in this regard.

URBINAT can help initiate the necessary change by guaranteeing the involvement of a broad section of the local populace and by insisting on the healthy corridor as a tool to improve living condition. Data collected will be processed with the aim to create comparative tables, listing characteristics of the different neighbourhoods, methods that have been implemented, common challenges, common concepts for the healthy corridors, NBS examples etc.

Our hypothesis is that mapping both qualitative and quantitative data are indispensable for evidence-based urban planning, offering tremendous potential for gaining useful insights into urban spaces and their impact on citizens.

3. Brussels

3.1. Introduction

Brussels is one of the four follower cities of the URBiNAT project, and was chosen for its green character, its history of involvement in European and international agreements and cooperation, and its current practice of citizen participation in political processes.

The URBiNAT project, implemented in Brussels through a Living Lab in the neighbourhood of Neder-Over-Heembeek, is meant to reconnect the social housing neighbourhoods amongst themselves, with the broader neighbourhood, and with the rest of the city. This to reduce socio-spatial fractures linked to its peripheral characteristics and particular history of socio-demographic developments.

The Healthy Corridor will improve the quality and coherence of public space along the corridor, repair the mobility fractures by improving “soft mobility” towards the Van Praet bridge, improve social cohesion and conviviality, amongst many other possibilities. The process of co-creation is open-ended, and will be guided by dweller-determined priorities, needs, and dreams, based on this first document that acts as a baseline for the future of the project.



Figure 3. 1. Map of Brussels Capital Region, indicating the position of the study area in Neder-Over-Heembeek

The neighbourhood of **Neder-Over-Heembeek**, and more specifically the sub-neighbourhoods of **Versailles, Val Maria, and Craetbos**, were selected as the study area due to their ex-centred nature within the Brussels geography. Located in the northernmost corner of the Brussels Capital Region, NOH is wedged in between the canal, the royal domain, and the ring road: all rather non-porous

barriers that have created a physical and social sense of isolation for inhabitants of this neighbourhood, leading to a growing sense of abandonment and mistreatment.

These neighbourhoods have shown up in socioeconomic indicators at a regional level as particularly marked by inequalities and poverty rates (see discussion of Urban Revitalisation Zones in 3.3). The social housing is managed by the Logement Bruxellois (Versailles) and Comensia (Craetbos and Val Maria), two members of the Housing Association of the Brussels Capital Region (SLRB-BGHM).

Taking the time and deploying resources in order to tackle the systematic structural and spatial issues in this neighbourhood has been a remarkable opportunity for the City of Brussels. It is symbolic of a general trend towards a more holistic, decentralised, and people-centred approach to municipal governance, and a renewed political interest in this isolated area of the city.

CITY OF BRUSSELS -- QUICK FACT SHEET

Capital of Belgium since 1830, the City of Brussels covers 32 km² of the 160 km² of the Brussels Capital Region (one of 19 municipalities that compose the urban agglomeration).

- Green spaces : 3,2 km²
- Population density : 5321,68 hab/km²
- 176,124 inhabitants, of which :
 - 112,367 Belgians
 - 39,066 foreigners from European Union member states
 - 24,691 foreigners from countries outside the European Union
 - with a total of **163** different nationalities
- Average age of the population: 36 years and 2 months
- Median income per person (2012) : 17,080 €`
- Number of employees (December 2013) : 235,206
- Number of self-employed (December 2013): 13,441
- Number of companies (December 2013): 16,027
- Average selling price for a flat (2013): 263,135 €

The City of Brussels is made up of six separate entities:

- Le Pentagone (city centre)
- Laeken
- Neder-over-Heembeek
- Haren
- Louise-Roosevelt southern axis
- The European neighbourhood (Léopold, Schuman and the squares)

The City of Brussels is the public institution responsible for the territory containing the study area and is also the institution piloting URBiNAT in Brussels. However, it does not operate in isolation, and is in fact in direct interaction with the **Brussels Capital Region** and its various institutes with regards to particular areas of jurisdiction, not least of which are those regarding matters of environment, planning, mobility, and resource (waste) management.

In essence, the municipality's policies are spread over three main areas:

Strictly municipal initiatives:

- Establishing municipal regulation on matters as diverse as public parks, clean streets, planning permissions, and cemeteries;
- Creating and managing public facilities and amenities available to citizens: municipal schools, kindergartens, sports centres and cultural centres;
- Taxation based on local tax regulations;
- Maintaining and renovating public spaces managed by the municipality (some public spaces are managed by the Region): roads, pavements, squares, public gardens;
- Any other initiative the municipality deems important regarding its territory and local field of action: introduction of community workers, evening courses, twinings, activities for senior citizens etc.

Compulsory services:

- These include the registration of births, marriages and deaths, and the issuance of driving licenses.

Financial and political participation in other public institutions:

- The city has its own Public Centre for Social Welfare (CPAS) which is its own legal entity, and has a distinct administration and management powers, although it is partly funded from the municipality's budget and there are links between the political bodies of the two institutions;
- The municipality can combine with other municipalities to provide a service by means of an inter-municipal association, for example in the field of energy or music schools;
- The municipality plays a prominent role in safety policy, participating both financially and politically in the police zones;
- The municipality is represented in some bodies managing religious groups when it is responsible for funding any deficit these groups may run up.

The Brussels Capital Region is responsible for drawing up overarching plans and regulations for the entire territory, in order to establish a coherence across the 19 municipalities composing it. Plans such as Good Move, Good Food, Good Soil, etc. are all essential tools for identifying joint priorities and fields of action. In addition to this, the **Sustainable Neighbourhood Contracts** (*Contrats de Quartier Durable*) showcase the possibilities for joint municipal-regional action in promoting revalorisation of areas deemed to be needing a particular focus of resources and

planning interventions. In the case of NOH, the newly acquired Sustainable Neighbourhood Contract for the Versailles sub-neighbourhood is a golden opportunity for the URBiNAT team to work with a wider array of actors and with a complementary budget to finance nature-based solutions to improve the quality of life in this neighbourhood.

At the local level, there are a series of associations and networks operating on the ground. Ranging from neighbourhood committees, to cultural centres, to umbrella organisations regrouping all local organisations, these local actors all have a primordial role to play in the everyday life of the neighbourhood. Engaging with these actors was an essential tactic in working towards this report, and they will be introduced in more detail later.

The scientific partner of the City of Brussels for URBiNAT is the University of Antwerp, and their contribution has been equally essential in guiding the development of the Living Lab thus far: providing insights into process, methodologies, and state of the art on planning and studies.

3.2. The city

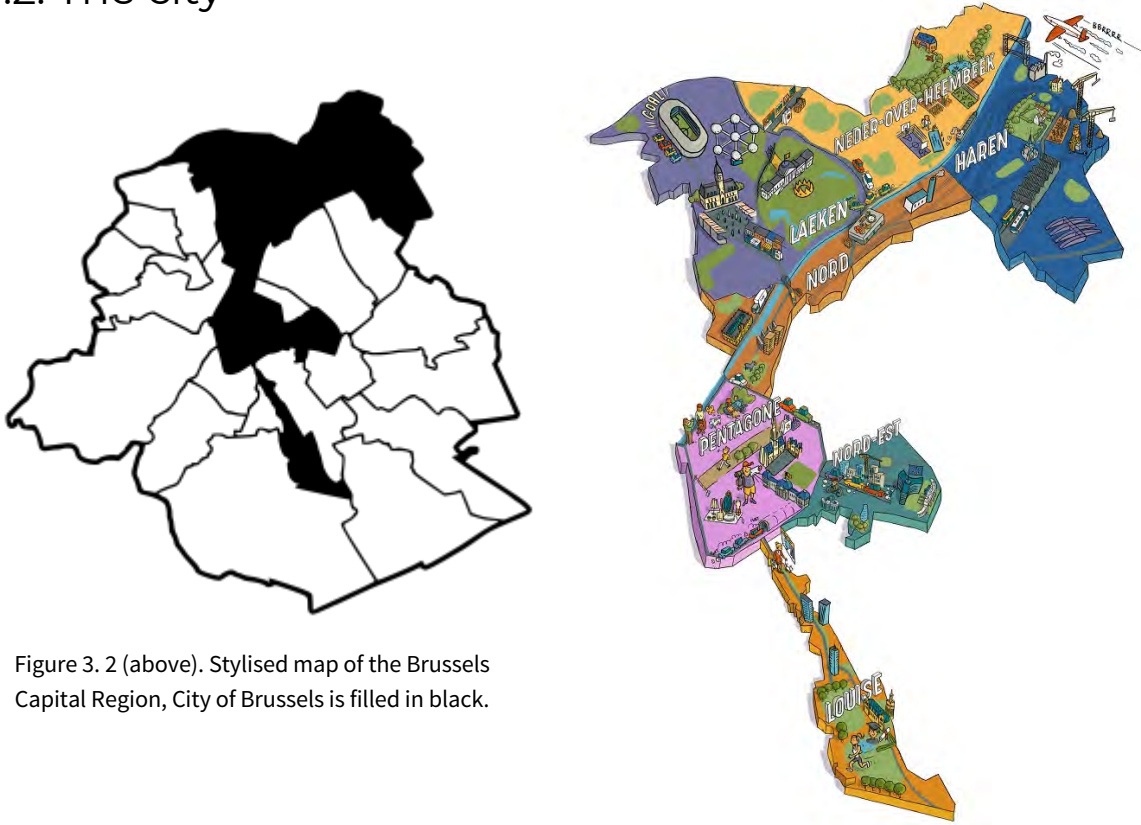


Figure 3. 2 (above). Stylised map of the Brussels Capital Region, City of Brussels is filled in black.

Figure 3. 3. Stylised map of the City of the Brussels, with its different neighbourhoods

In the black and white map above, we see the Brussels Capital Region, with its 19 municipalities, and the City of Brussels filled in in black. In the coloured and stylised map on the right, we see the subdivision of districts (or neighbourhoods) that compose the municipality and were annexed at various moments to the old city centre (Pentagon).

The City of Brussels (municipality of Brussels, not to be confused with the Brussels Capital Region which is an agglomeration of 19 municipalities), is a city of 185 103 inhabitants (IBSA, 2020) and 32km² with a rich historical past. It is located more or less in the middle of Belgium, and with its 18 counterparts, forms an independent region, though it is surrounded by the Flemish region and remains well connected spatially and socioeconomically to the Wallonian region.

At the regional level, a plethora of plans (some more recent than others) have been developed (Good Food, Good Soil, Plan Bruit, Good Move, etc..), implemented, reworked over time, to try to bring coherence and a common directive line to this complex agglomeration.

At the municipal level, the Municipal Sustainable Development Plan (PCDD), which is a territorial specification of the Regional Sustainable Development Plan, is currently undergoing its final modifications before publication (in 2022). The Climate Action Plan (second version) is also underway and will be published by the end of 2021. Other prior plans include the PCD (Municipal Development Plan) and the 1000 Houses Plan ([Plan 1000 Logements](#)), which both had significant impacts on the development of the centre and peripheries of the City of Brussels. The 1000 Houses Plan, especially, had a significant socio-spatial impact on the peripheries, as it led to a rapid urbanisation of previously agricultural zones and green spaces, leading to ruptures that need to be dealt with.

Note to the reader: A number of the data and descriptions given in the following sections will be given varyingly at municipal and regional level, depending on the relevance of data, and how important it is to further contextualise the information given (e.g., with such wide-spanning data such as mobility networks, hydrographic networks, and geological characteristics. The distinction between the City of Brussels (municipality; “City”) and the Brussels Capital Region (region comprising 19 municipalities; “BCR”) will each time be specified.

3.2.1. Territorial description



Figure 3. 4. Brussels Capital Region located in Belgium

The high density of the municipality (5,321 inhabitants per square kilometre) hides a great disparity between the different districts: some are very populated while others are much less like the industrial zones in the north. There are 51 parks and gardens (3, 2 km²) within the City of Brussels (managed by the city itself or the Region). There is on average 25m² of green space per inhabitant.

They are relatively well distributed on the territory, but they are of smaller sizes within the city centre. Economic activities are particularly present in the City of Brussels, particularly in the Pentagon, which accounts for 50% of the Region's offices. This dense population and these intense activities result in:

- A highly urbanized area in the centre with a very strong waterproofing of surfaces
- Numerous public facilities

The city is made up of various territories that have been progressively linked to it. It thus presents an atypical structure made up of the profiles of the following neighbourhoods, very characteristic and polarized one another, in their social composition:

The poverty zone

The distribution of the precarious districts follows mainly the axis of the canal west of the city centre as well as the suburbs of the 19th century. These neighbourhoods, with very low-quality housing and rents, were reinvested, following the industrial decline of the City in the 1960s mainly by populations of immigrant and / or low-skilled origin. The precarious populations fall back on the markets that remain accessible to them, which have prevented depopulation and a massive abandonment of these districts. These densely populated districts form an area of poverty, half-moon sometimes compared to a suburb, in the immediate vicinity of downtown.

Suburbanization

The more affluent, second-crown districts and the older bourgeois districts followed the suburbanization movement of the well-to-do populations, which began in the 19th century and were amplified in the 1950s. These districts have a much more attractive architectural and / or urban environment. Suburbanization was particularly strong in Brussels, propelling the well-to-do populations in the periphery, unlike most European cities, with a stronger inking of the well-to-do populations in the city centre. The phenomenon of bruxellization and metamorphosis that Brussels has experienced is not foreign to this movement.

Gentrification

The phenomena of gentrification (the investment of central districts by more favoured social groups), visible in the Pentagon, participate in the revitalization movement of the heart of the city. These are mainly old districts that have undergone major revitalization operations, especially since the early 1990s, and are being appropriated by young households at a "high socio-cultural level". These populations settle in a social fabric in the wake of increased impoverishment, which in turn creates tensions in the city. These spaces have succeeded in renewing their commercial attractiveness and remain, for a population outside these districts, centres of leisure and consumption.

The old villages

Neighbourhoods still containing more village-type nuclei (population and town planning), relatively out-of-date (deficiencies in terms of public transport) and attached late to the City (1921): Haren and Neder-Over-Heembeek in the north of the City. These neighbourhoods have the lowest population densities and, a fortiori, the lowest housing opportunities. These neighbourhoods, however, can evolve, through increasing urbanization, towards problems encountered in other neighbourhoods.

Social housing sites

There is a high concentration of public housing in the City: 7809 social housing units and 5064 public housing units. Concentrations are especially high in the downtown area.

Most of these districts include large Modernist ensembles. This situation combined with the high concentration of critical precarious situations makes these neighbourhoods an environment conducive to intergenerational and intercultural conflicts.

Monofunctional neighbourhoods

Finally, the presence of predominantly monofunctional districts of services (offices, museums ...), almost empty of inhabitants, mainly in the east but also in the North, with no quality of life, is little animated at night. Real estate speculation, demolitions or mono-functionality have weakened these neighbourhoods at their margins.

If within the city these different districts have a certain physical proximity, from one pole to another, the social distance may be greater or lesser.

The canal, around which the older districts are structured, also remains a very important frontier in the city's imagination.

3.2.1.1. Climate and Urban Environment

Belgium is a small country, and has a relatively similar climate in all its regions. Brussels is no exception: it is characterised by a **temperate oceanic climate**, due to its proximity to the Atlantic Ocean, and experiences cool, wet summers and mild, rainy winters.

In the face of climate change, the City of Brussels and the Brussels Capital Region are not exempt from having to deal with issues of climate resilience and adaptation of its territories to increasingly erratic weather and urban pressures. In particular, Brussels is faced with increased **flooding risks, droughts, and urban heat island effects**, due to its topography, local weather patterns, and increased urbanisation. The sealing of surfaces (*imperméabilisation des sols*) is particularly concerning, as it is estimated that the rate has gone from 26% in 1955, to 47% in 2006, and has not slowed or reversed since ([Vanhuysse et al., 2006](#)).

In a 2019 report on the state of the climate in Brussels (“Le changement climatique en Région de Bruxelles-Capitale : état des connaissances”, Bruxelles Environnement, Martin Binon), a number of conclusions were drawn :

The air **temperature** has been rising for two centuries. A first jump in air temperature was observed in the 1910s. Since the beginning of the 1980s, average air temperatures have been rising in all seasons at a rate of:

Average air temperature	Annual	Spring	Summer	Autumn	Winter
Increase compared to the period 1961-1990	+0.38°C per decade	+0.39°C per decade	+0.4°C per decade	+0.31°C per decade	+0.4°C per decade

Table 3. 1. Average air temperature increase by season

As observed for the Brussels-Capital Region, the upward trend in the average air temperature is particularly pronounced in spring and summer. There is also an increase in solar radiation. This general increase in temperatures is a general trend across Europe.

MRI data on **evapotranspiration** suggest a clear increase in annual evapotranspiration since the 2000s. Seasonal analysis indicates an increase in evapotranspiration mainly encountered in spring. **Precipitation** is fairly regular on a monthly scale, and results from frontal (regular, long rains) and convective (intense, short) systems, both of which can occur throughout the year, but with a greater tendency towards intense thunderstorms during hot weather. Precipitation levels have not changed significantly in recent years, however, there is a downward trend in **groundwater recharge** of almost 50% due to a decrease in precipitation combined with relatively constant evapotranspiration.

In terms of extreme weather events, the BCR has been most marked by **longer heat waves** (leading to algal blooms and cyanobacteria in surface water bodies), and a general tendency of a drying out of soils due to changes in consecutive rain days (a European trend). The BCR is increasingly sensitive to **flood risks** due to sewer back-up, due in large part to the sealing of its territory (*imperméabilisation*), the artificialisation of its drainage networks and the disappearance of numerous wetlands and ponds. This risk is especially pronounced during intense rainfall events of a stormy nature, notably in the summer months⁴. Intense rainfall events have remained within normal ranges, however, and it is therefore the ever-increasing sealing of soils since the middle of the last century, much more than the intensification of rainfall, that really explains the increase in

⁴ This risk became all the more prominent during the intense flooding that occurred in July and August of 2021 in the south of the country, though thankfully in this case the BCR was not affected.

flooding. This is intensified by the increased potential of soil crusting, which would further increase the impact of flooding.

In the future, it is expected that there may be a reduction of more than 50% in the number of winter days, and a parallel increase of almost 50% in the number of summer days (compared to the norm before 2005), accompanied by a 4-fold increase in the number of heatwaves (in the most pessimistic scenarios).

In sum, the report concludes that the BCR is in a **transitional zone regarding climate change**. Climate changes remain limited in our temperate zone, in contrast to the more marked situations in the North (wetter) and South (drier) of Europe, whose influences we could, however, experience from time to time depending on the direction of atmospheric flows.

On the other hand, **as an urban region, the vulnerability of the territory and the infrastructures also depend on non-climatic factors**, such as soil sealing and the number of people and goods exposed to climate risks. However, it is clear that the growing urbanisation trend of recent decades will increase the risk of flooding, the urban heat island effect and the population's need for water; unless the development of the territory is accompanied by a strengthening of compensatory measures aimed at a **"sponge" city, an "oasis" city**.

There is currently little knowledge of the capacity of **carbon sequestration** at the municipal level, and regional data is insufficient to establish a territorial analysis, as there is only an inventory of single trees and not thickets or other typologies of green spaces. The City of Brussels is currently working on filling this knowledge gap by inventorying its thickets, to complement its management of unit trees, and in order to better evaluate its territory's resilience.

Over the last twenty years, the **air quality** in Brussels has improved significantly, linked in part to the elimination of major sources of emissions (hospital incinerators, cooking plants, etc.), to the reduction of volatile organic compounds (VOCs) or sulphur in fuels, the elimination of lead in petrol, the introduction of catalytic converters in cars, the renewal of the car fleet, the increasing use of natural gas for heating, etc. However, this situation can nonetheless be improved for certain pollutants, such as ground-level ozone, suspended particles, CO₂ (5 million tonnes emitted annually), and POPs (persistent organic pollutants, due to their toxicity and persistence rather than concentration). Since January 2018, the permanent "Low Emission Zone" system has been in place throughout the 19 Brussels municipalities. There is currently a project in progress in the Pentagon to measure the levels of air pollution through different local measuring stations (collaboration of the City of Brussels with Bruxelles Environment) in order to measure the effects of the rerouting of traffic in the city centre, the effect of the "maillage", and to see the effect of the generalised "Zone 30" policy put in place since the 1st of January 2021.

Climate adaptation strategies and policies

The City of Brussels signed the "*Convention des Maires*" ([Convention of Mayors for Climate and Energy](#)), and has committed to carbon neutrality by 2050, with an added goal of reduction of 55% by 2030.

In the Municipal Sustainable Development Plan (PCDD) that is presently in development, within the thematic focus of “a green city”, the following focal elements were identified:

- Create a continuous communal green network integrated into the urban fabric through:
 - New green spaces connected to each other and to existing ones
 - Greening of public spaces, roads, and the interior of blocks, to reduce waterproofing (sealing of surfaces) and to reduce urban heat island effects
- Guarantee access to quality green space for every citizen
- Solve current and future water-related problems by:
 - Restoring the place of water in the city through the creation of a continuous blue network that promotes integrated and visible water management in the city
 - Reducing the consumption and wastage of water for distribution
- Improving air quality in the city, especially in sensitive areas such as residential areas, schools and hospitals, both indoors and outdoors
- Reduce greenhouse gas emissions and energy consumption, while increasing the production of energy from renewable sources
- Reducing noise pollution in public spaces and residential areas, as well as near sensitive areas such as schools and hospitals
- Ensuring a balance between the inhabited and the visited city

The Climate Action Plan 2.0 of the City of Brussels is currently being developed with the ambition of involving all municipal bodies, para-municipal agencies, 3rd party actors, and citizens. It is intended to be an update of its first (2018) Plan, in order to ensure the climate and energy transition and the goal of climate neutrality by 2050. It takes into account:

- the evaluation of the first Climate Plan and the City's Agenda 21
- the diagnosis of the Municipal Sustainable Development Plan and the transversal strategic program;
- the workshops conducted in the City's departments and the results of the participatory process.

The City is particularly at risk for Urban Heat Island effects, and this especially in the central zone (historical centre, Pentagon) : [see the map below](#).

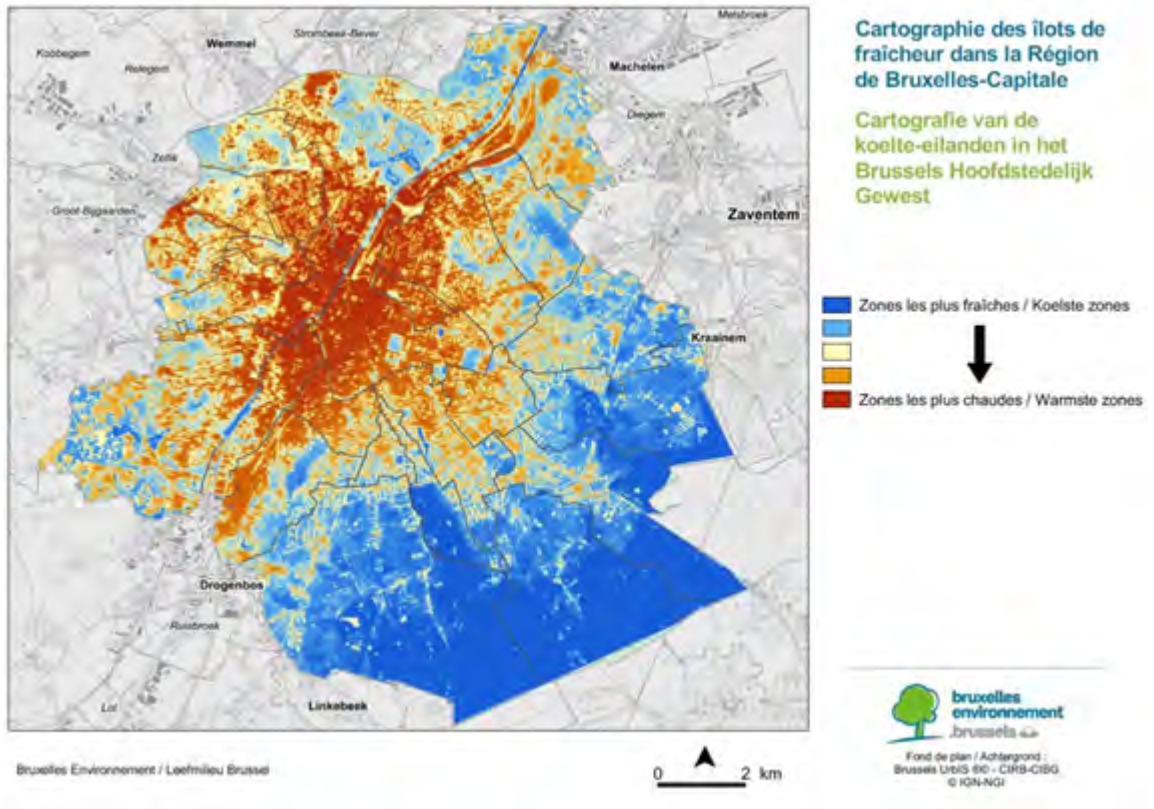


Figure 3. 5. Cartography of the 'freshness' islands in the Brussels Capital Region

Air quality is also an issue of concern, as can be seen in the maps below:

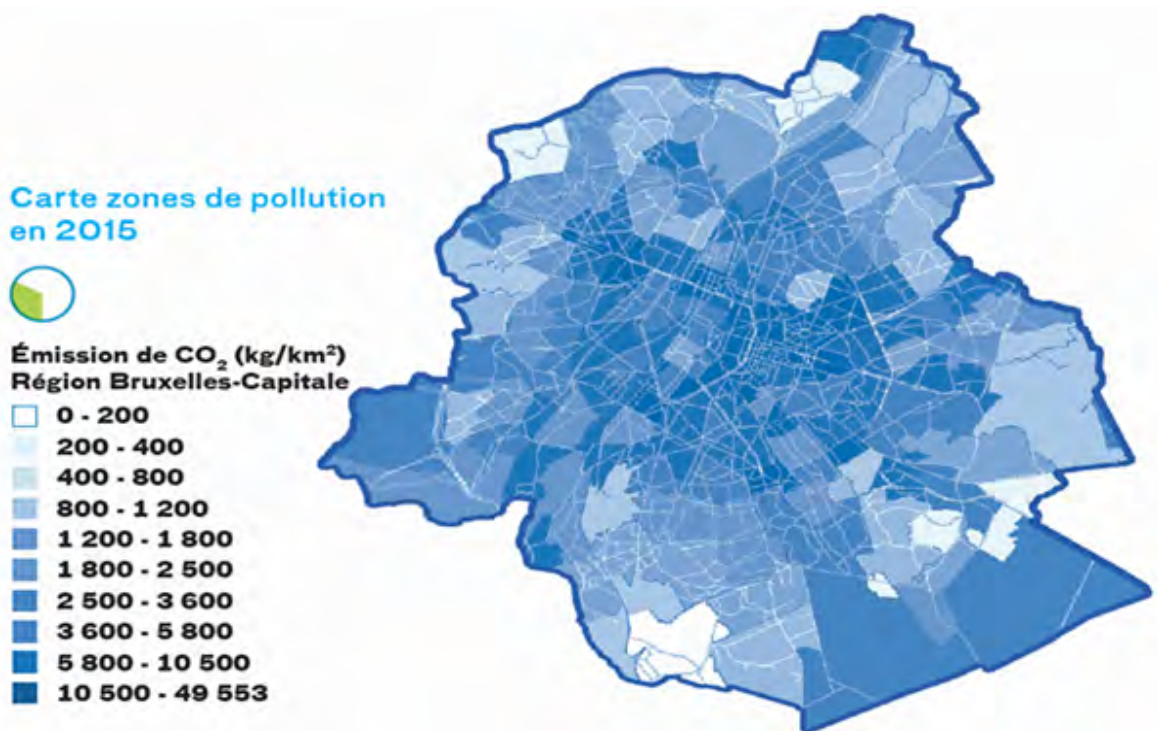


Figure 3. 6. Map showing the pollution zones (in CO₂kg/km²)

The waterproofing of surfaces (*imperméabilisation des sols*) has been of increasing concern, particularly as the Region is increasingly faced with flooding risks due to extreme precipitation events. In the City of Brussels, this is particularly marked in the historical centre, but one can note that this phenomenon is spreading outwards, with the risk of engulfing zones that are still comparatively quite green (see map below). We can see here that NOH (especially Heembeek) is a particularly un-sealed part of the city, and thus is essential as a space of preservation to maintain its resilience in the face of climate change-related risks.

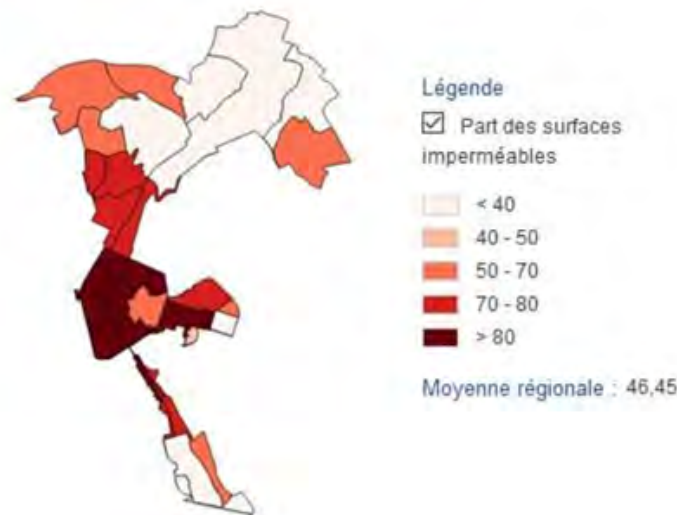


Figure 3. 7. Map of the City of Brussels showing the proportion of impermeable surfaces

In the context of the Climate Action Plan, a diagnosis was made for each district to identify priority thematic areas. **In Neder-Over-Heembeek** (the focus neighbourhood for URBiNAT), three issues at stake were identified: the preservation of green and blue zones, the housing and real-estate pressure, and flooding risks. Additionally, the presence of an incinerator in this territory contributes to the emission of dioxins and heavy metals. However, these have a low impact on public health, as they are not very concentrated.

1. Preservation of green and blue areas

- Green lung of the town: last communal agricultural land; still some remnants of the old rural landscape (farms, hedges, pollarded willows, orchards, sunken paths, etc.)
- Protected green areas (green spaces around Ferme nos pilifs)
- Wetlands = the Tweebeek area
- limited blue network
- few open watercourses (many streams but are more visible) => reconnect the territory with the blue zones

2. Real estate pressure

- many private and public housing/infrastructure construction projects => pressure on the green spaces still available
- urbanisation => population growth
- mobility infrastructures not adapted to soft mobility => strong presence of the car

3. Flooding

- Fairly frequent flooding
- Large difference in level between the northern part of the district and the Chaussée de Vilvorde
- Impacts a large number of citizens

Potential working areas that have been identified in this context are the following:

- Green and blue network “meshing” (*maillage*)
- Recycling of biowaste
- Urban agriculture

Other structures that currently have a Climate Action Plan or a Sustainable Development Plan in Neder-Over-Heembeek : Solvay, Be.Face Brussels, Youth Start, Job Yourself, Article 60, and others including the Nos Pilifs Farm, a sizeable and active partner in this area.

3.2.1.2. Biophysical characterisation

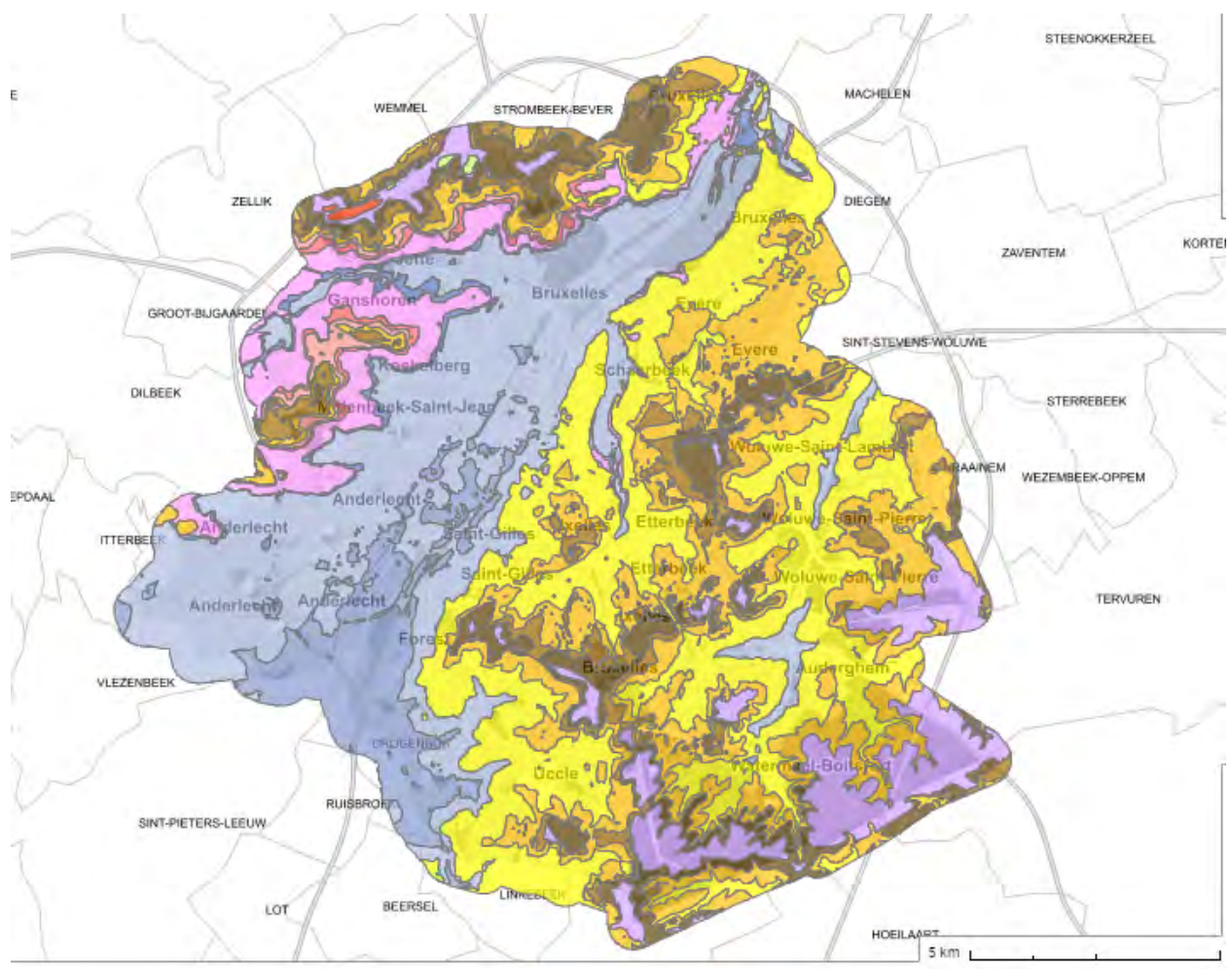


Figure 3. 8. Geological map showing biophysical composition, taken from Bruxelles Environment

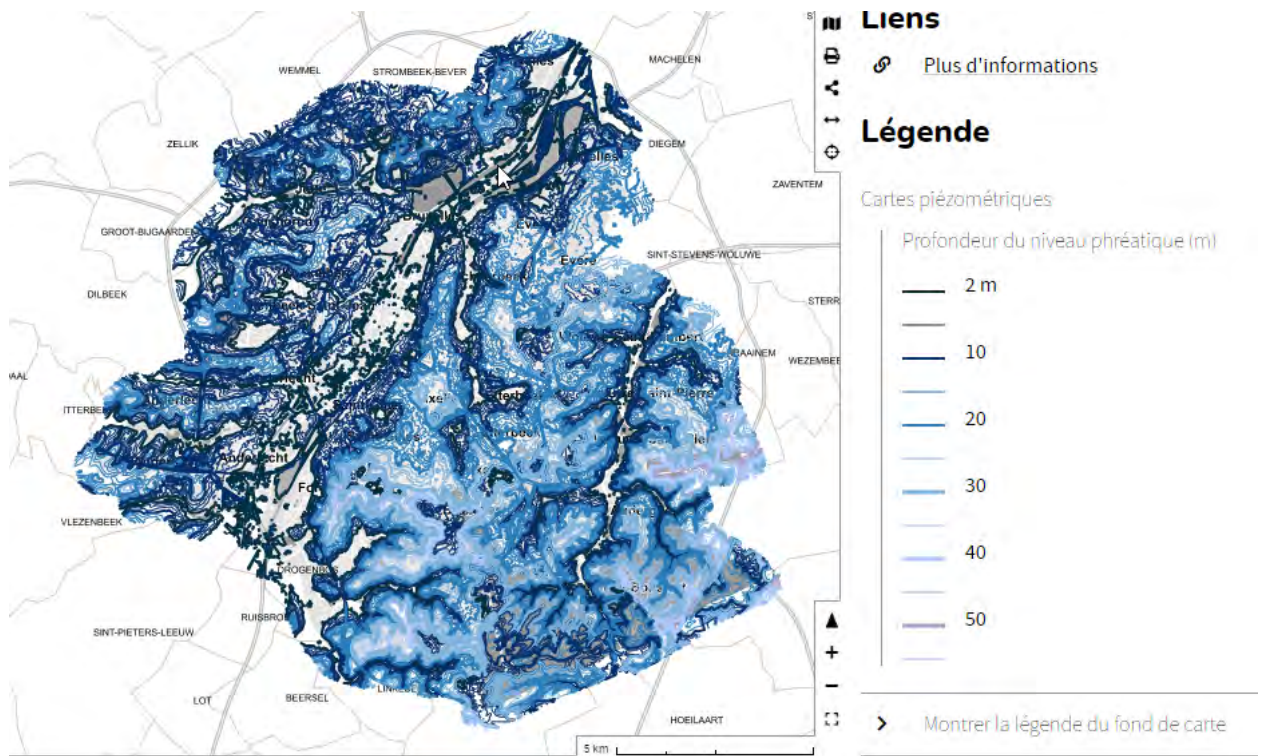


Figure 3. 9. Hydrogeology, indicating depth of phreatic levels, map from Bruxelles Environment

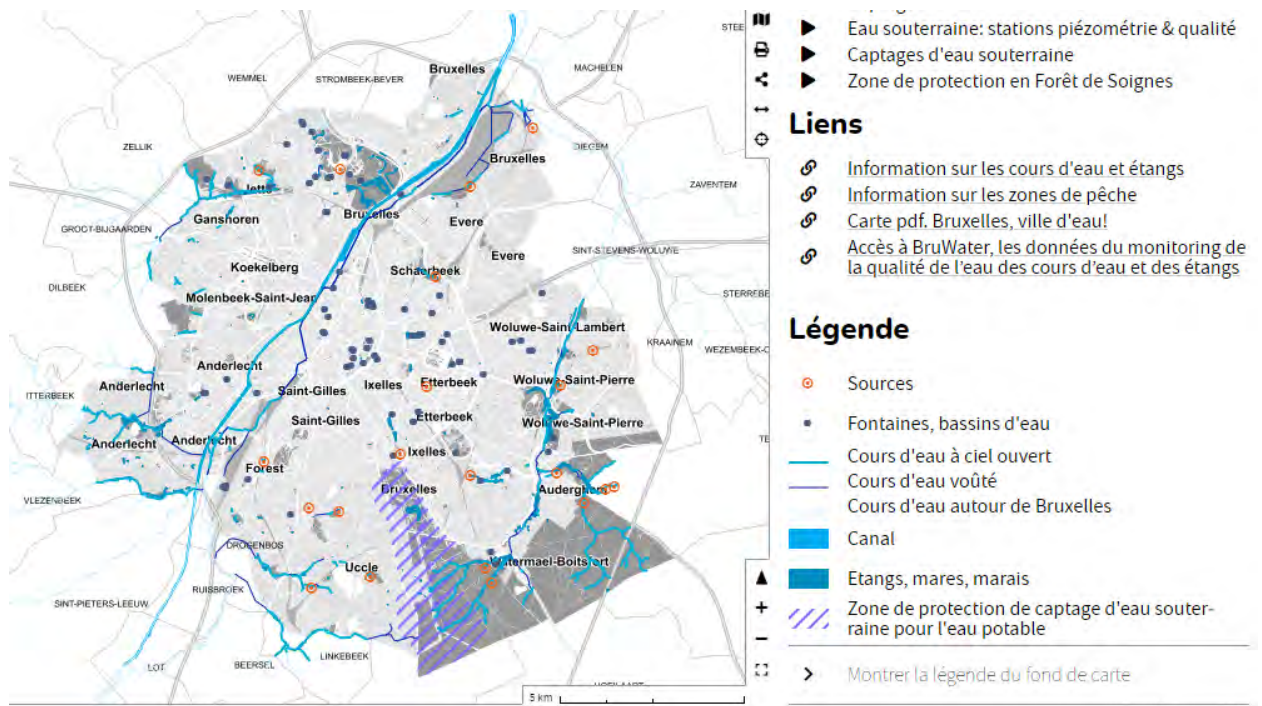


Figure 3. 10. Hydrography and artificial water bodies, map from Bruxelles Environment

Due to a past dominated in some areas of the Region by intensive industrial activity, particularly alongside the canal zone and the Tour & Taxis area (portuary and railway infrastructures), there are quite some **soils polluted by heavy metals and other pollutants**. The map below identifies soils that are potentially polluted, as well as those that have been tested and categorised according to their risk factor. A regularly updated map is available [here](#).

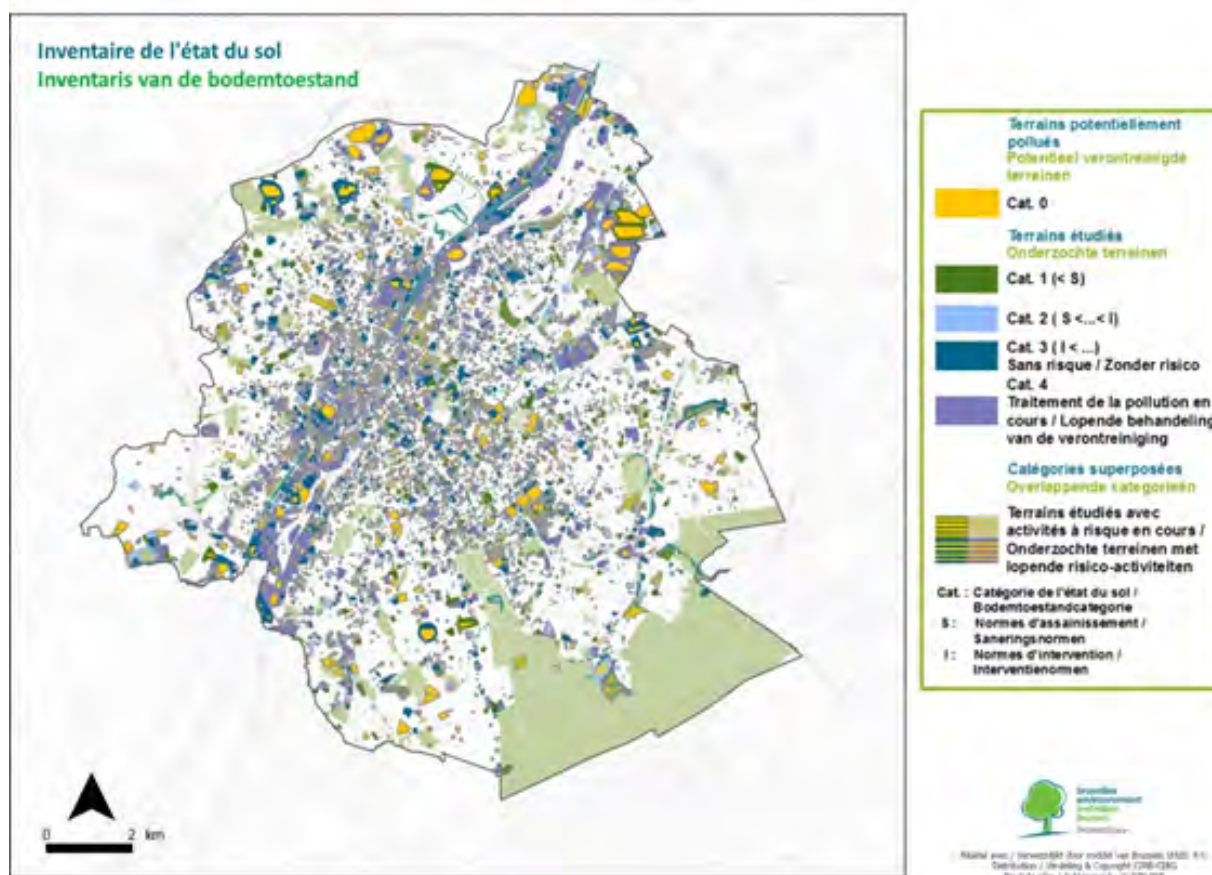


Figure 3. 11. State of the the soils

A strategy is currently under development at regional level (Bruxelles Environment) for a **Good Soil** policy. This new policy will be presented to the municipalities in September 2021.

3.2.1.3. Land use/ land cover

The Regional Land Use Plan (PRAS) is determined by the Regional planning bodies as the essential reference point for all land use planning in the BCR, and has to be respected when developing any new plan for an area. It can be further specified within the PPAS (Particular Land Use Plan), which itself has to be in line with the PRAS.

Though Brussels is known as a very green agglomeration, it is important to note the disparity of access to green spaces for different populations, as the concentration of green spaces is uneven (see fragmentation of green spaces map in 3.1.5).

According to the Land Register in 2012, residential buildings (mostly houses (with gardens = 40% in 2001) and apartment buildings) accounted for 37% of the regional surface, with a 7% increase in the past 10 years (NB: this was not an evaluation based on the *actual* state of built-up areas). The number of green spaces (woods, gardens and parks, agricultural land, fields, grassland, and orchards, as well as fallow land) accounted for 32% of the surface area recorded in the Land Register in 2012. However, over the period 1992-2012, the total built surface area increased by 9%. The

strongest growing categories are apartment buildings (+ 49%) followed by, albeit less pronounced, banks and office buildings (+ 27%) as well as public utility equipment (+ 19%) and buildings for recreation and sports (+ 10%). Soil sealing, though unevenly distributed across the Region, increased by 18% between 1993 and 2006.

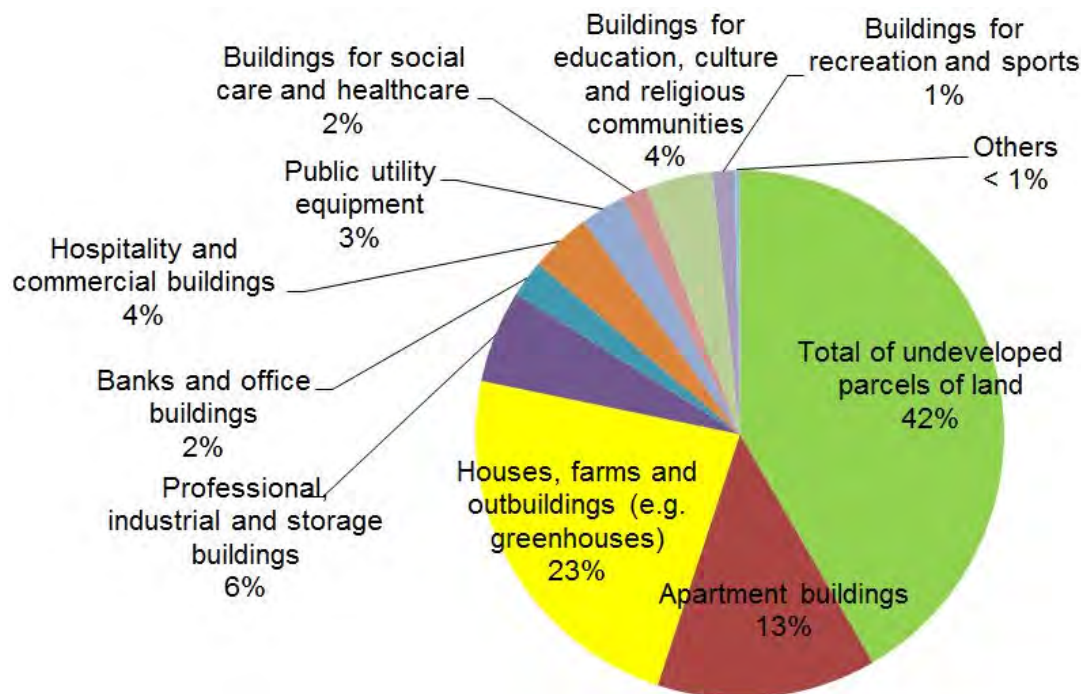


Figure 3. 12. Proportions of land use, taken from IGEAT-ULB (S. Vanhuysse, J. Depireux, et E. Wolff), 2006, "Etude de l'évolution de l'imperméabilisation du sol en Région de Bruxelles-Capitale", 60 pages.

3.2.1.4. Transportation network (urban dynamics)

The BCR has an extensive public transport network (see [map](#) below), though with its own difficulties in ensuring a reliable service. Axes are very well developed in the south-east to centre direction, and east-west axes (metro lines connecting the peripheries). The northern and southern-most municipalities are less well connected (in terms of pure travel time), as they have exclusively surface trams and buses (a new metro line, #3, is currently under construction, and is highly contested).

The [Good Move](#) plan (regional) is currently being implemented, with its own set of contestations, and aims to reduce car activity in the BCR, focusing on "soft" mobility, a generalised 30km/h speed limit across the BCR, improving P+R options for commuters, and cycling infrastructure.

Car traffic is globally recognised as being very troublesome in the BCR, and can be objectively noted in the amount of red spots of lost-time in traffic in the map below (Bruxelles Mobilité 2016). However, many car users lament the lack of good public transport alternatives, and the dangers and inconvenience of cycling (especially for those who are self-employed manual labourers or require logistical solutions for their economic activities).

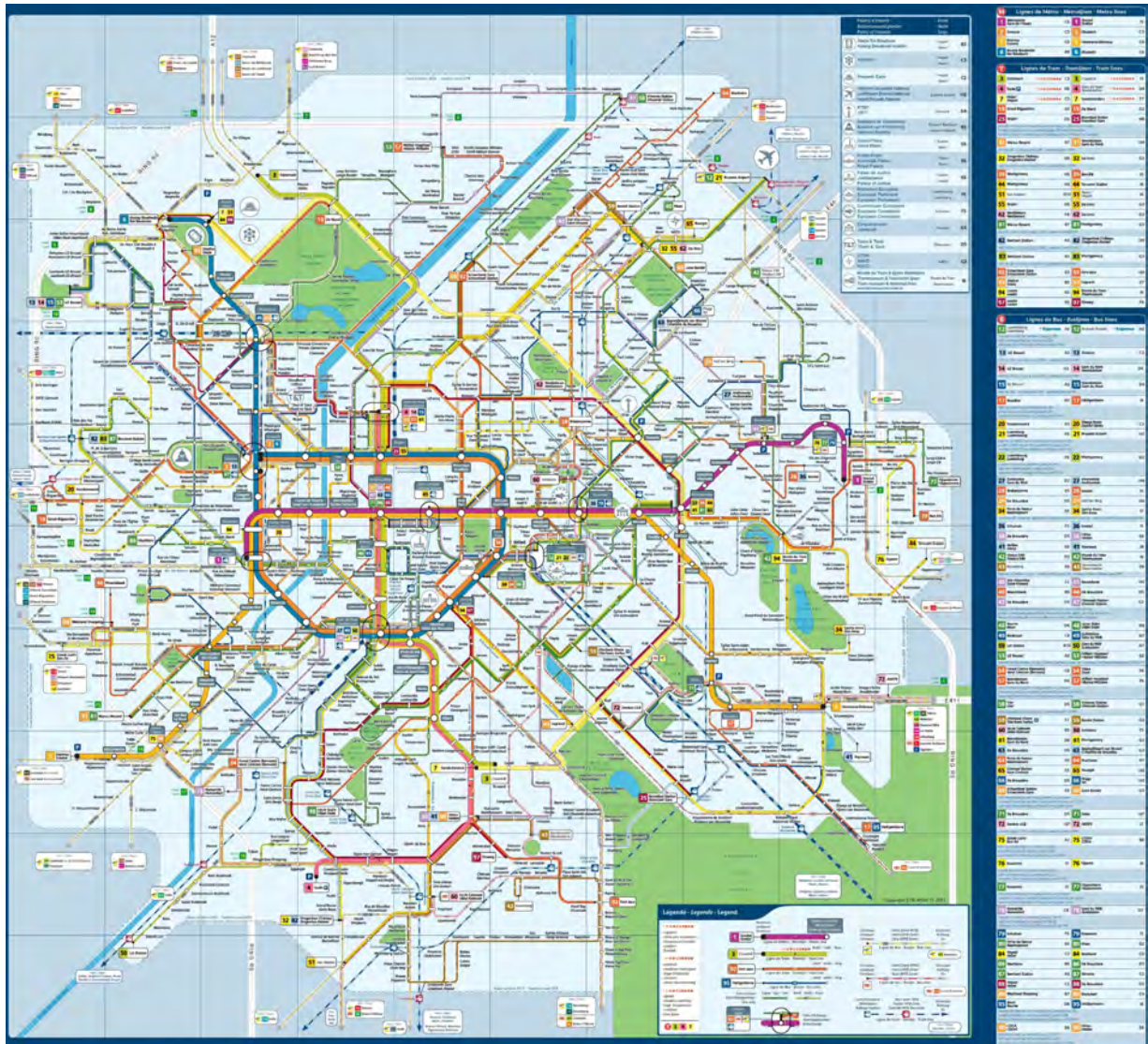


Figure 3. 13. Map of transport network in the BCR

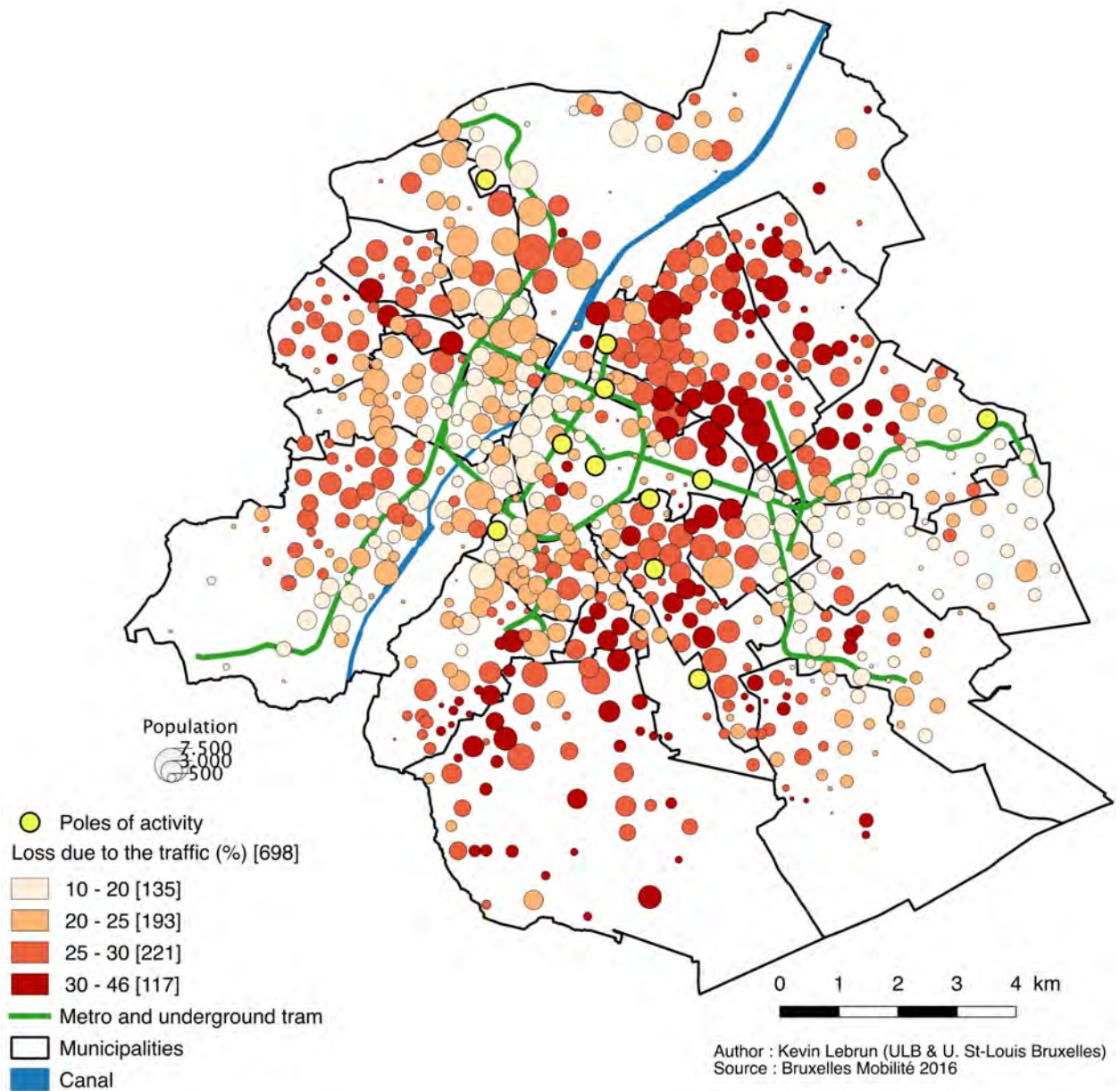


Figure 3. 14. Traffic congestion in the BCR

3.2.1.5. Green structure and Biodiversity

The “Regional Nature Plan” (2017) aims to :

- “Improve access to nature for the people of Brussels: everyone should have a quality green space close to home, including in the city centre.
- Consolidate the regional green network: green spaces connected to each other so that species and biodiversity can evolve in the city.

- Integrate nature issues into plans and projects: consider nature in all decisions, including outside protected areas.
- Extend and strengthen the ecological management of green spaces: better manage public spaces and ensure a coherent approach by the many managers.
- Reconcile the acceptance of wildlife and urban development: protect and restore natural habitats and species; reduce nuisance from problematic species (foxes, etc.).
- Raise awareness and mobilise the people of Brussels in favour of biodiversity: develop, in close cooperation with the stakeholders in the field, a global communication strategy that will identify the key messages to be conveyed and the audiences to be targeted as a priority. The objective is also to encourage respect for public green spaces and their facilities.
- Improve governance in the field of nature: create bridges and strengthen "nature partnerships" between the public and private players involved in the development and planning of the Region, in particular green spaces and public areas.”

A map produced by the Region shows the various ecological barriers and “black zones” for ecological prosperity :

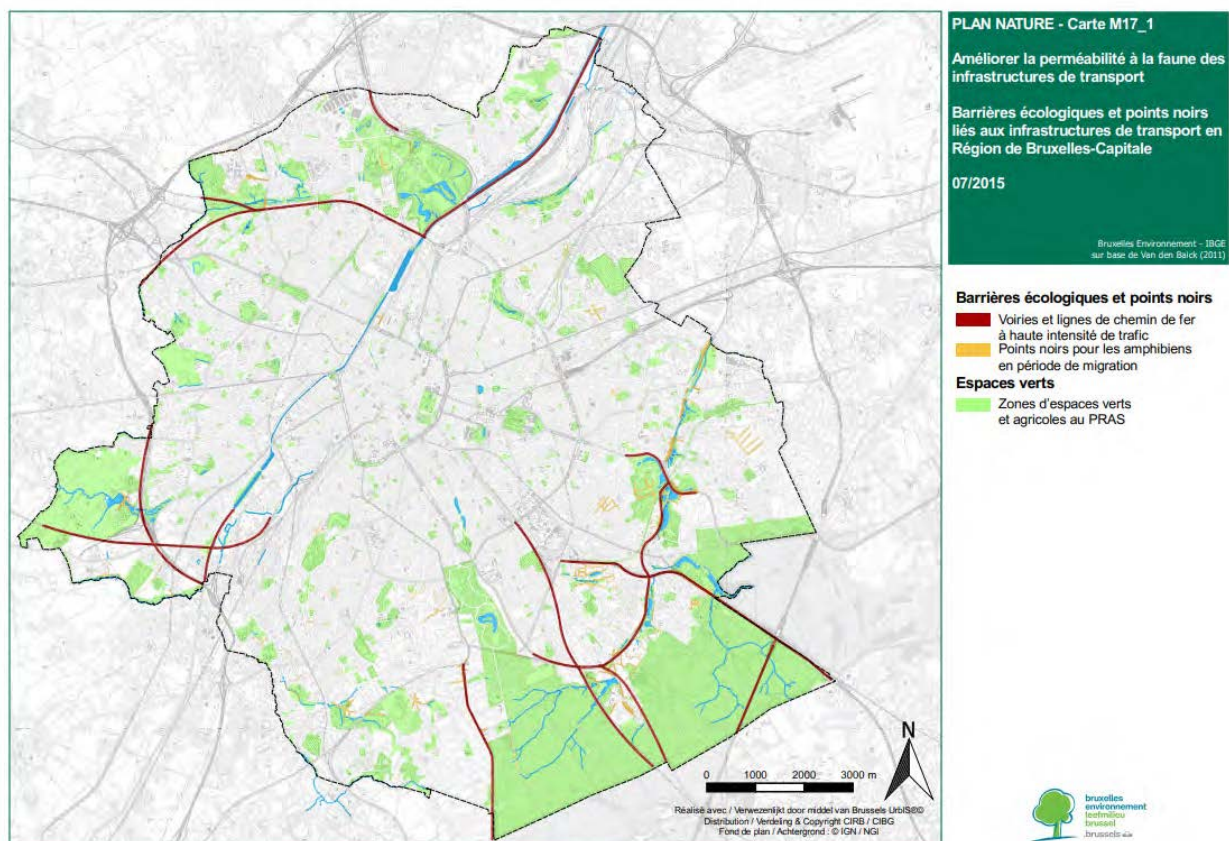


Figure 3. 15. Map extracted from the “Plan Nature” indicating ecological barriers and “black zones”

Another shows agricultural zones and permeability of the urban areas with its rural peripheries, where in conjunction with the map beforehand we can see the value of the ecological connection to the Flanders region, but there is a harsh border formed by the canal and train lines, as well as the highway :

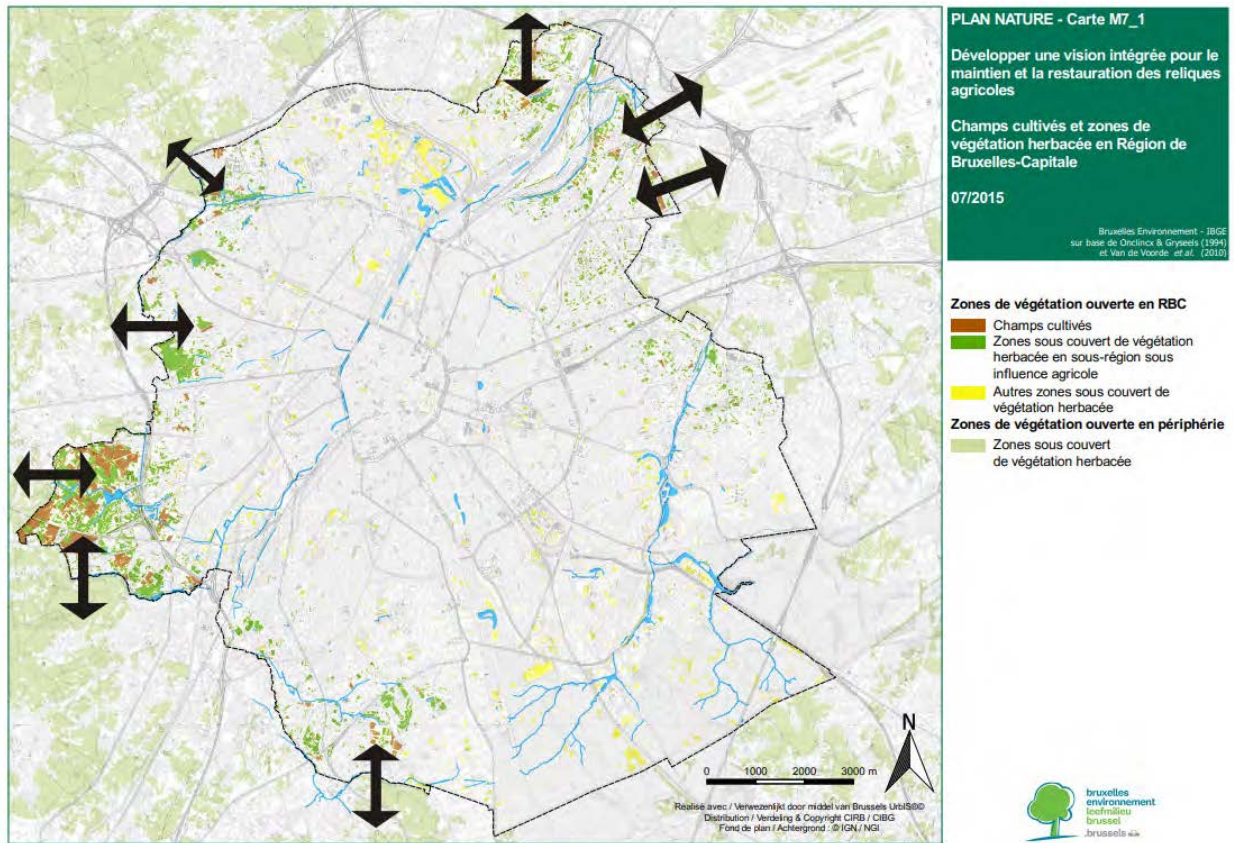


Figure 3. 16. Map showing zones of open green spaces, connecting to the Flemish hinterland

Finally, the following map shows zones of deficiency in green spaces:

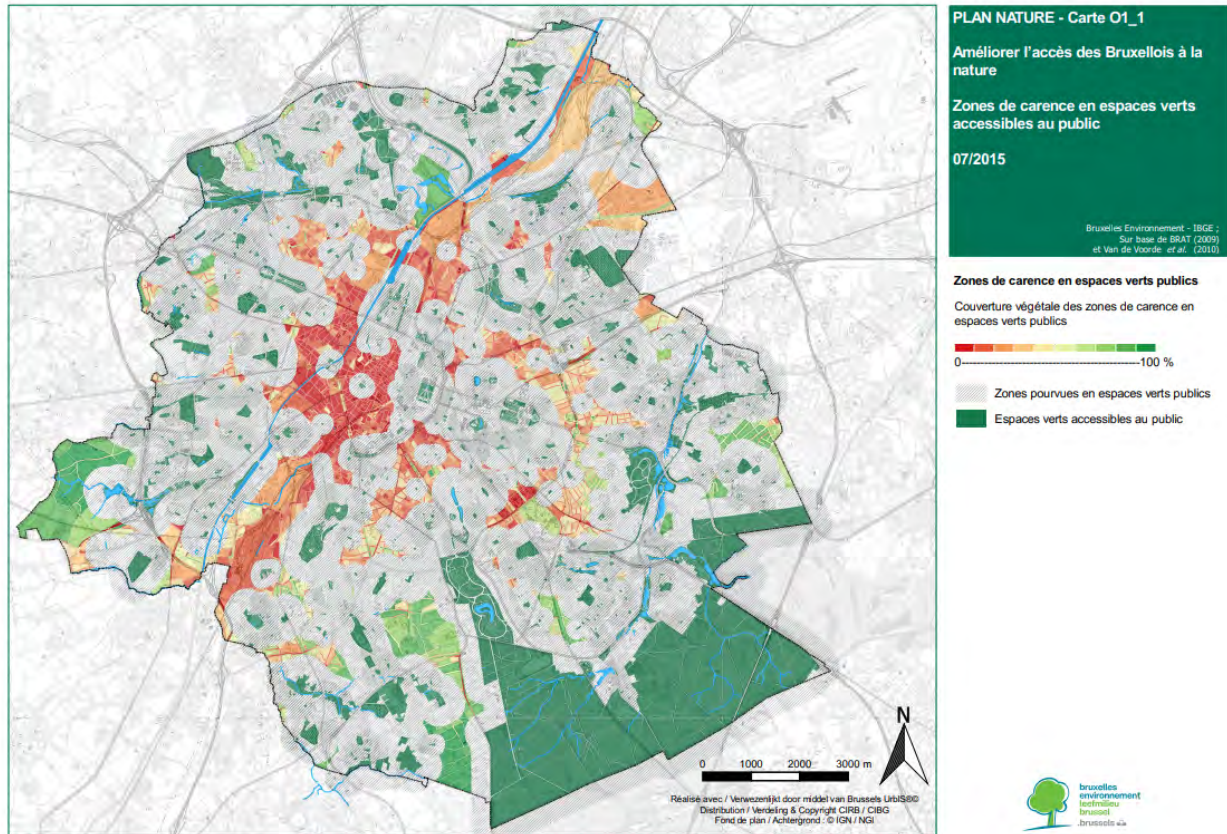


Figure 3. 17. Map showing zones with a lack of green spaces

The Region aims to increase the green “meshing” at a holistic, regional level, and thus has identified some action points synthesised in the map below :

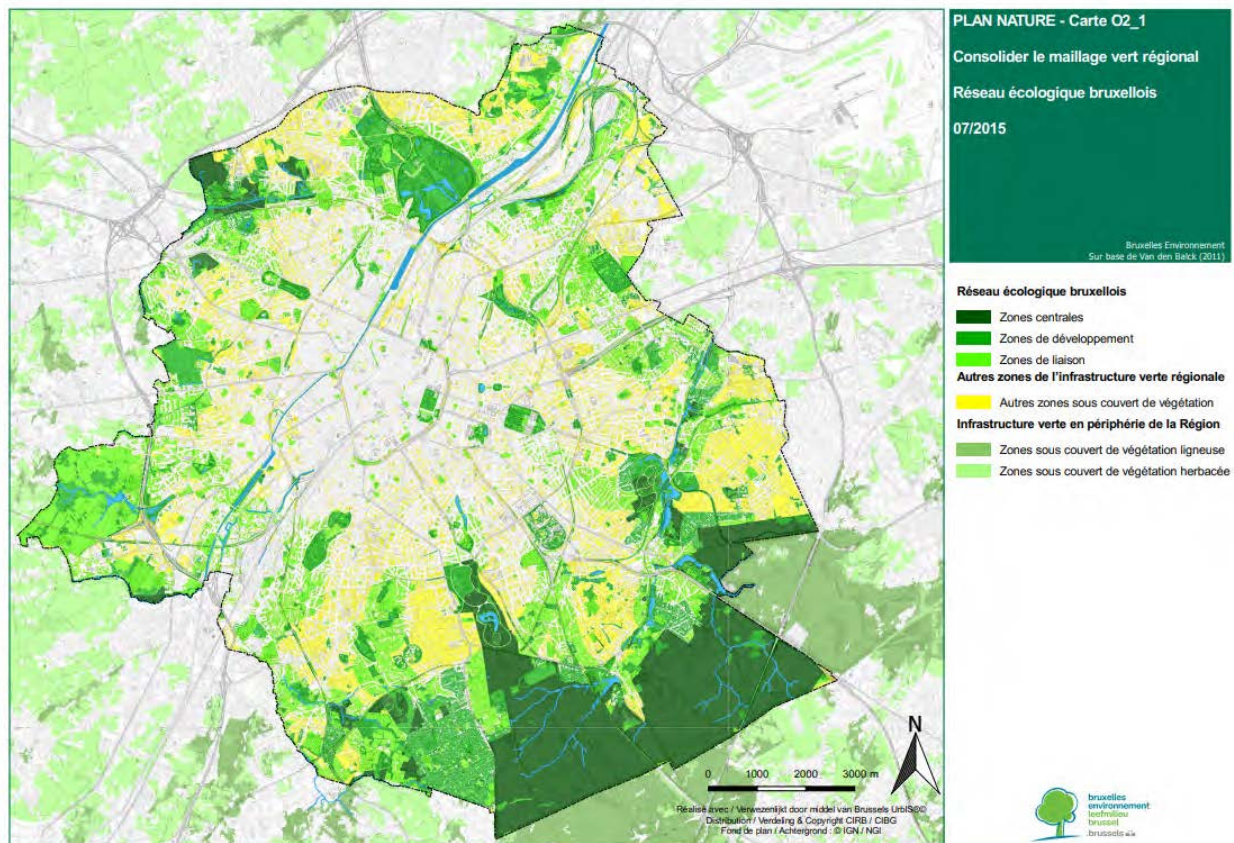


Figure 3. 18. Map indicating the consolidation possibilities for the “green meshing” in the BCR

In a more precise study of this green meshing project, a document was published in 2014 already identified the Van Praet zone as a key leverage point for the strengthening of this network, and to improve permeability towards Flanders via Versailles and the old highway connection (described in greater detail in Section 4).

There are a small number of Natura 2000 zones in the perimeter of the BCR agglomeration, but none within the perimeter of the City of Brussels.

3.2.1.6. Water management

State of the water systems in Brussels

Flooding is one of the key risks associated with increased climate change in the coming years in Brussels. As a former marshy ecosystem and densely interconnected by small rivers, many of the old watercourses can still be noted in maps of flooding risks such as the one published by BE in 2019 and presented below. We can note in this map that the canal zone especially (a key axis in the City of Brussels’ territory) is susceptible to flooding from overflow of water bodies and intense precipitation events. The Maelbeek valley in particular has experienced regular flooding, manifest in people’s basements, and sometimes up into the streets (BE, 2020).

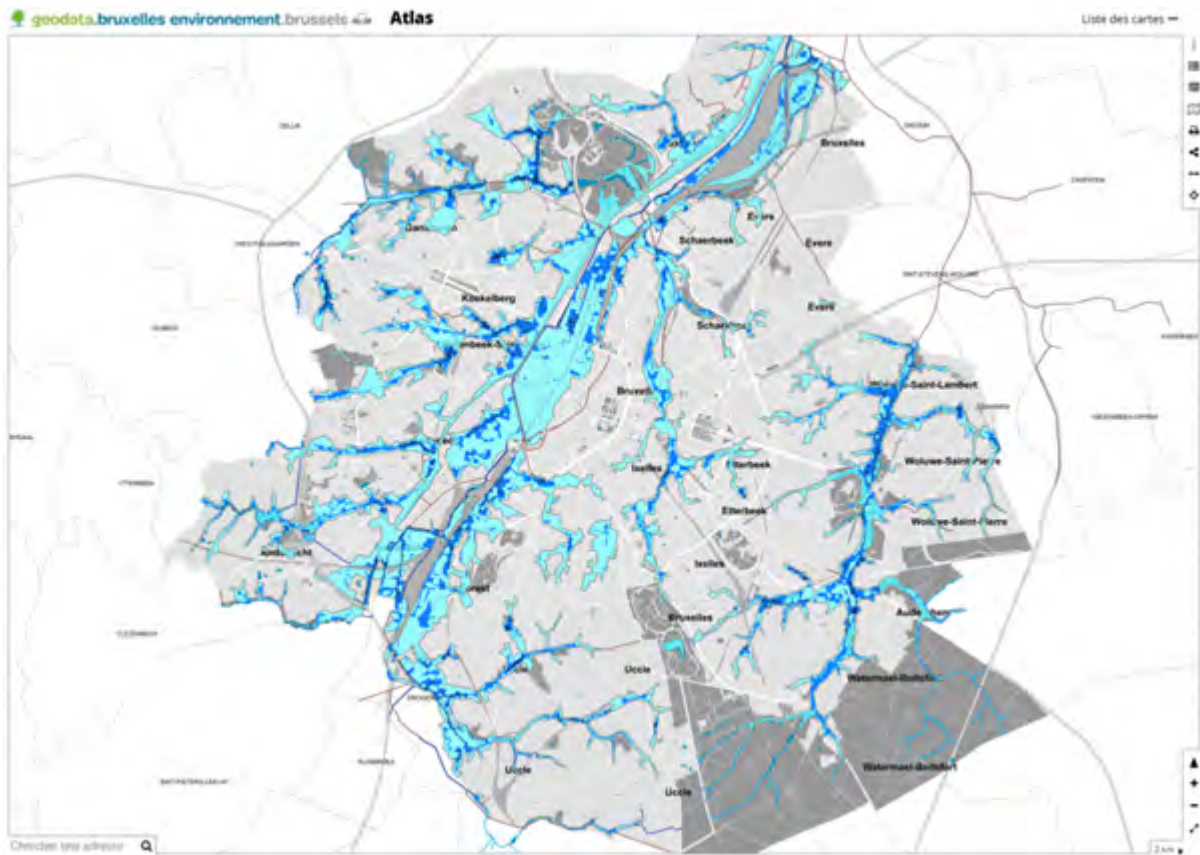


Figure 3. 19. Map indicating zones with a flooding risk

In the map below, we can observe the hydrographic and sewage networks, as well as the main water treatment plans (North and South), published by BE.

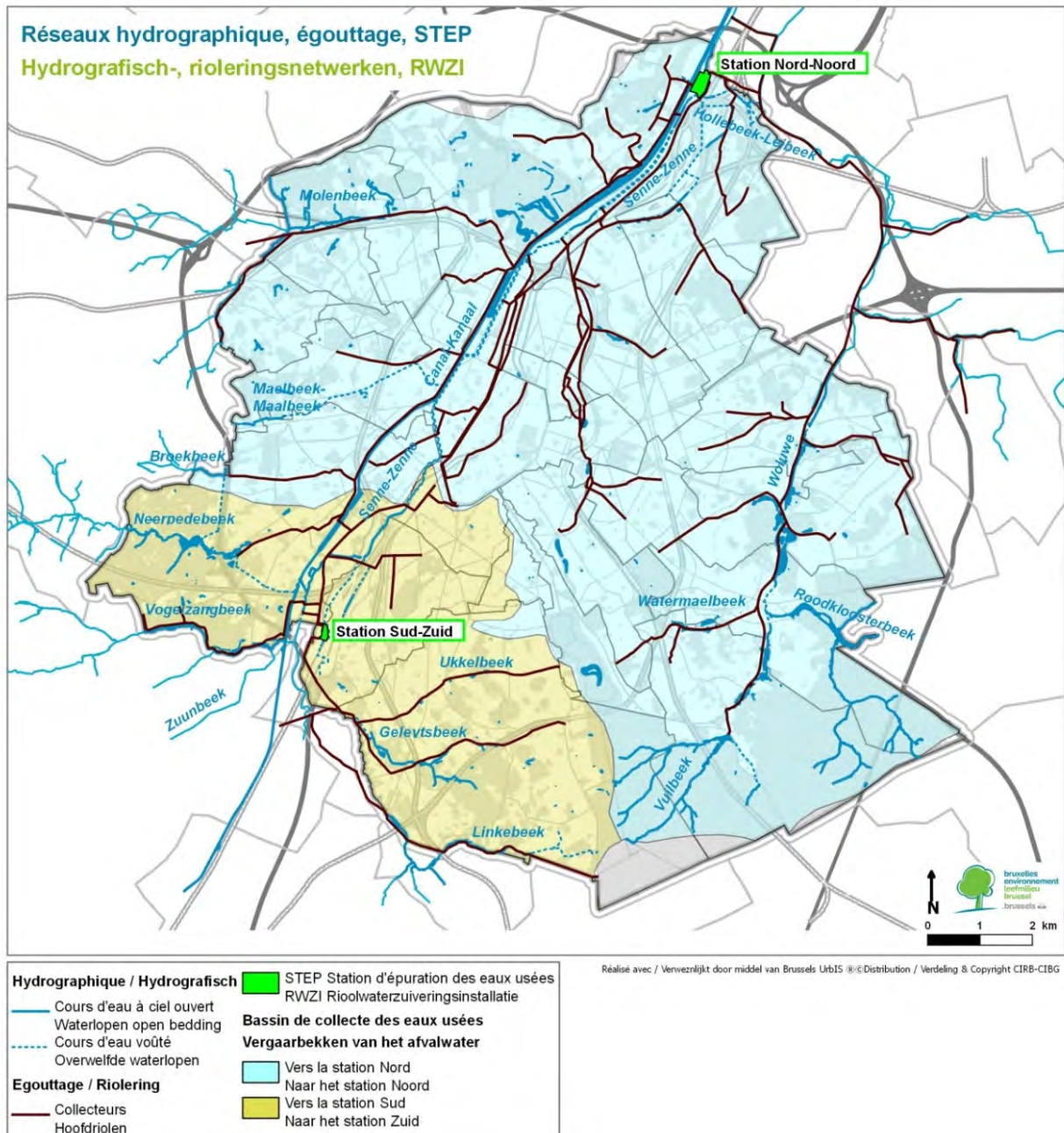


Figure 3. 20. Map describing the hydrographic network in the BCR

Management / water governance

Vivaqua is a private organisation that manages the drinking water supply and sewers network of the Brussels Capital Region. Water quality is regulated by the 1998 European directive 98/83/CE, and additionally subject to regional and federal regulation, which are stricter than European legislation ([Vivaqua](#)). Approximately 60 million m³ of water is consumed in the BCR yearly.

Storm-water basins are managed by the **Société Bruxelloise de Gestion de l'Eau (SBGE)**. Flooding events are more and more regular in certain municipalities of the Region, especially following old watercourses and topography lines. These are due in part to the increased intensity of rainfall

events (due to climate change), and to the increased urbanisation of the region, which seals surfaces against infiltration. Storm water basins, such as those in the valleys of the Woluwe and the Maelbeek, thus offer a localised solution to flooding risks. None of those currently in operation are located on the territory of the City of Brussels.

The **City of Brussels** is currently participating in a project entitled **Brusseau Bis**, which aims at increasing the resilience of high-risk flooding zones (following the ancient water courses, traversing different municipalities). The best practices and intervention strategies developed in this context will be invaluable in guiding potential interventions further on in the context of NOH.

The **Municipal Water Plan** (Plan Communal Eau, unpublished), aims to improve the water management on a municipal scale, working to implement integrated water management interventions, creating spaces for water retention, intervening on the rooftops of municipal buildings, and working with local actors to develop coherent interventions. The city also has a subsidy available for citizens to make adaptations in their private homes to better manage rainwater.

The **Regional Environmental Office** (Bruxelles Environnement), is developing policies for a “blue network mesh” (maillage bleu) alongside its development of the “green” meshing. A map and description of this blue meshing is available [here](#); a map of water bodies is available [here](#); a map and description of the green-blue mesh strategy is available [here](#).

3.2.2. Social description

As a capital city and European, the Brussels Capital Region and its 19 municipalities compile a wide variety of people and diverse functions. This generates its richness, but also is the source of some issues, linked to socio-spatial fractures, economic inequalities, issues of social cohesion and tolerance, amongst others.

3.2.2.1. Demography

Bruxelles	Région de Bruxelles-Capitale	Région de Bruxelles-Capitale	Belgique
Superficie en km² 33	Superficie en km² 162	Superficie en km² 162	Superficie en km² 30.688
Population 186.916	Population 1.219.970	Population 1.219.970	Population 11.521.238
Habitants / km² 5.596,3	Habitants / km² 7.500,7	Habitants / km² 7.500,7	Densité Belgique 374,5
Croissance de la population 2011-2021 17,40%	Croissance de la population 2011-2021 11,81%	Croissance de la population 2011-2021 11,81%	Croissance de la population 2011-2021 6,02%

Table 3. 2. Overarching statistical presentation of the BCR

Some overarching statistics (represented in the screenshot above) can be found [here](#).

The diversity of territories covered by the City of Brussels, due to its unusual shape, implies a diversity of demographic profiles and population evolution. The City experienced its historical maximum of 200,000 inhabitants in the early 20th century (just after integration of the annexed territories of Laeken, Neder-Over-Heembeek, and Haren, and linked to a rapid urbanisation of these peripheries), and its historical minimum of 130,000 in 1999, and has since been increasing significantly. It now accounts for 15% of the total population of the Region, with 175,534 inhabitants in 2015, following a growth of 23% between 2005 and 2015 ([IBSA, 2016](#)). This high proportion with regards to the Region means that the City is closely aligned to the Region in terms of indicators. One exception is that the **population is generally younger** than the regional average (36 years old), linked to an increase in the share of young people (under 18, counting for a quarter of the population in 2015) and adults of working age, and a decrease of older populations (over 65) (**aging coefficient is 47%**). An age pyramid can be found [here](#).

There are many **more men** present on the City's territory compared to the Regional average (104/100 versus 95/100). The **life expectancy** of men in the City between 2003 and 2007 was lower than for women at ([75.10](#) versus [80.40](#)).

The number of **households** in 2020 in the City was 87,046, a large majority of which are composed of 1 or 2 people ([IBSA, 2020](#)).

In 2019, on the entire territory of the City of Brussels, the CPAS (Public Social Welfare Centre) provided a monthly welfare income to 7,367 recipients ([IBSA, 2020](#)).

The City houses 27,440 pupils going to kindergarten and primary school (3-12 years old), and another 21,270 students go to secondary school (12-18 years old) ([IBSA, 2020](#)).

Further population statistics may be found [here](#).

In a study by [Van Hamme et al \(2016\)](#), an analysis of migratory patterns in the Brussels Capital Region indicates that the poorest statistical sectors in the Region experience the highest **demographic pressure**, and the most demographic influx from poor or intermediate countries. These zones are concentrated in the centre and west of the Region, with a concentration alongside the canal zone. However, they do not operate merely as transit zones for incoming migrants, as large parts of the populations do remain within these neighbourhoods for longer periods of time. Housing policies encouraging social mixity in these neighbourhoods (including Sustainable Neighbourhood Contracts, which we will discuss in 4.1.5) increase the pressure on these zones and can occasionally encourage gentrification dynamics which are exclusionary to the original populations. The map below is sourced from the same study, which can be found [here](#).

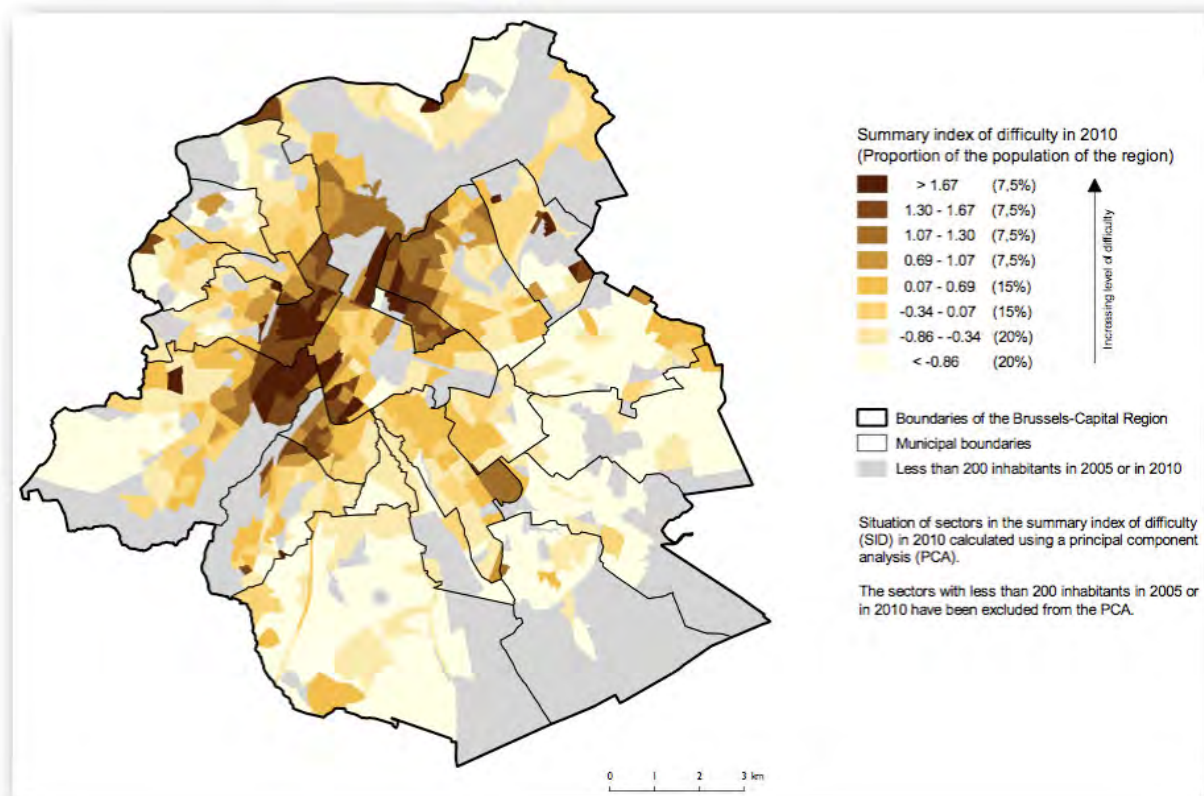


Figure 3. 21. Summary of the index of difficulty in 2010

Brussels is reputed to be an international city, with over 180 nationalities, ranking it amongst the top **multicultural** agglomerations in the world (alongside cities such as Amsterdam or New York). As the capital of the country, it is also a city that has a long history of immigration: from its peripheries, from the countryside, and from the EU and Global South. The different waves of migration are the result of various labour and migratory policies over the decades, responding to the economic and political context at those times. At the regional level, an estimated 160,000 people (17% of the population) are of Muslim original; at the City level, this number is estimated at a lower 8.2% of the population coming from a country where Islam is the dominant religion (Torrekens, 2007).

3.2.2.2. Safety and health

General state of health of the population

78.4% of the population above 15 years old were in **self-declared good health** in the Brussels Capital Region in 2018, with men tendentially more so than women (IBSA, 2018). However, a surprising 13.3% of the population took psychotropic pills in the same year (IBSA, 2018).

An interesting study conducted in 2001 by the DGSIE (then the INS) explored the perceptions of the quality of living conditions of inhabitants of the BCR. The map that synthesises these results can be found below:

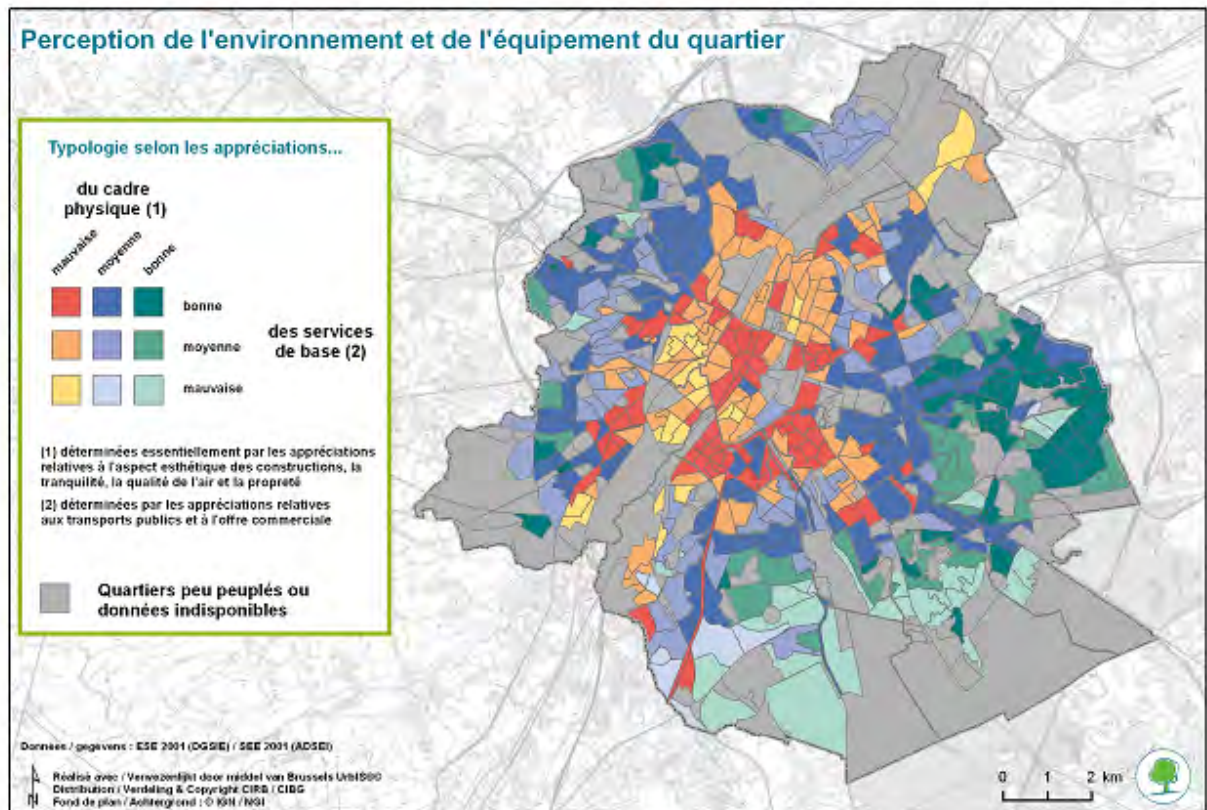


Figure 3. 22. Perception of environment and public facilities at a neighbourhood level

An interactive version of this map is accessible [here](#).

The analysis of this map is below:

“An analysis of the spatial distribution of the index obtained shows a rather contrasting situation in terms of how neighbourhoods are judged by their residents. In the Brussels Region, there are neighbourhoods that are well perceived in terms of both the physical environment and services (in the eastern part of the Region), as well as neighbourhoods that are unanimously less appreciated (in the western part of the 1st ring).

In many cases, however, the situation is more complex, with one or other component of the neighbourhood dominating the judgement. For example, the south of Uccle is perceived as having a pleasant physical environment but is criticised for its lack of services. The city centre and the old 19th century suburbs are highly valued for their shopping and accessibility by public transport, but the physical surroundings are not perceived very well. In many respects, the intermediate neighbourhoods (between the first and second ring) and **many of the old village cores seem to be an interesting compromise in terms of judging the overall quality of the neighbourhood's environment and services.**

It should be noted, however, that due to the weight of land and financial factors (which are reflected in the socio-spatial structures of the city), this typology does not allow for an assessment of the contribution of the perception of the living environment to residential choices.” (BE, 2011)

Health of the inhabitants ([IBSA, 2016](#))

“Life expectancy in 2012 in the City of Brussels is 82.3 years for women and 76.9 years for men, which is slightly lower than in the Brussels Region. The difference in life expectancy compared to the Region is linked to a higher mortality rate of the elderly in the municipality compared to the Region, particularly for men. In comparison with the regional situation, premature mortality related to diseases of the respiratory tract (including cancers) and diseases of the circulatory system (such as ischaemic heart disease) as well as from other causes is more important in the City of Brussels.

Health depends on many factors, including lifestyle, physical environment (working conditions, housing), quality of life, social environment (social and family support), access to and quality of care, etc. Social status, because of its links with all the other determinants is a very important determinant of health status. Thus, the relatively more unfavourable socio-economic situation of the residents of the City of Brussels compared to the regional average could partly explain a slightly lower life expectancy than that of the Region.”

3.2.2.3. Participation

In the **municipal elections** of the 14th of October 2018, out of 179,277 inhabitants registered (1 Jan 2018), the City of Brussels had 87,919 voters registered, with 74,606 votes turned in, of which 70,467 votes were valid ([IBSA, 2020](#)).

In 2019 citizen meetings were organised on several topics (mobility, climate, economy, etc). In 2020 the first neighbourhood council was launched. The local diagnostic indicated 3 main topics for the participatory budget: mobility, social cohesion, green spaces. More information regarding these meetings can be found [here](#).

3.2.2.4. Public services

For a description of the various **mobility infrastructures**, please refer to 3.1.4. For a description of **public services**, please refer to 3.3.5.

The [Open Data platform](#) of the City of Brussels makes available all the GIS layers detailing public services present in its territory. These are too extensive to extract and place here.

3.2.3 Economic description

Two elements are of note in terms of the economic characterisation of the Brussels Capital Region generally, and the City of Brussels more specifically. Historically and geographically, the lower zones of the agglomeration, located around the canal, have been the sites of industrial activity and have concentrated populations linked to these activities. This has led to the persistence of what is called the “**poverty crescent**” (see the zones in blue in the map in 3.3.1), zones of lower- and working-class populations. Due in part to the location of the historical city centre (connected to the canal), and the annexation of the municipalities bordering the canal in 1921 (Laeken, Neder-Over-Heembeek and Haren) north of the city centre, the City of Brussels’ territory includes a large tract of this poverty crescent.

It is important to note that the “Canal Plan” is currently underway in order to tackle the socio-spatial inequalities linked to the poverty crescent, and to revitalise these now largely post-industrial zones (for further details, consult the documents published by Perspective Brussels analysing the economic issues linked to this area).

In addition to this geographic characterisation, as with many capital cities and in particular due to its role as European capital, the BCR and City of Brussels is the **site of socioeconomic inequalities** that are quite marked. Some key figures identifying these disparities can be found here for the Region, and here for a comparison of the City and the Region.

Another important element of note is the recent publication of a Regional analysis based on Kate Raworth’s Donut Economics model (2021), which will prove essential in determining economic policy in the near future, in line with climate adaptation objectives and circular economy principles.

The City of Brussels tends to have statistical indicators that show greater socioeconomic disparities than the Brussels Capital Region, as it has a very extended and diverse territory, with a diverse and multicultural population. Statistics alone do not show sufficient information to gather the spatial nature of these disparities: for this it is necessary to base ourselves on the analysis of the regional planning institute Perspectives Brussels, which identifies **Urban Revitalisation Zones (ZRU)**. The ZRU zones are based on extensive statistical and cartographic analysis, in order to identify priority areas for public investment. 3 core criteria serve as determining elements for this identification of priority zones:

- 1) The median income is inferior to the regional median (19 072 euros in 2016);
- 2) The unemployment rate is superior to the regional average (21,31% in 2015);
- 3) The population density is superior to the regional average (7 380,23 inhabitants/km² in 2018).

The most recent version of the ZRU analysis dates from 2019 and included for the first-time areas outside of the historical core of the BCR, including notably the Versailles statistical sector. In Neder-Over-Heembeek, it is the only zone that falls within this category currently. Based on this, the statistical sector “Versailles” was initially identified as a nodal point for intersecting inequalities, and thus as a focal point for our study area, which we will develop in Section 4.3.

3.2.3.1. Income and poverty

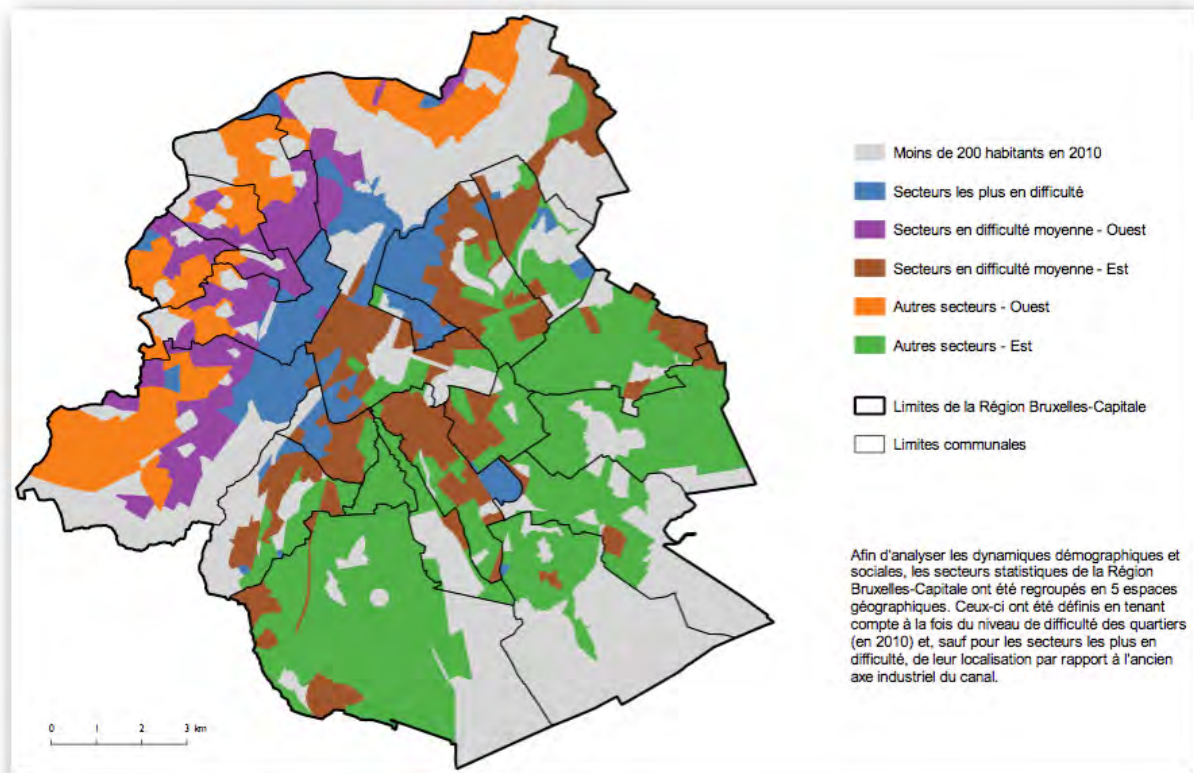


Figure 3. 23. Map showing economic difficulty according to statistical sectors (drawn from this report)

The IBSA 2016 presentation of municipalities draws up the following socio-economic profile:

“With parts of its territory in the centre, in the first and second ring, i.e., with very different morphological and socio-demographic characteristics, the City of Brussels is home to a population with a **very diverse socio-economic profile**. However, these are often working-class and middle-class households.

The **average income** is lower than that of the Region. The average income is lowest in the poor crescent, i.e. in the southern part of Laeken (Quartier Nord, Vieux Laeken) and the south-western part of the Pentagon (Anneessens, Stalingrad and Marolles), and the highest in the northern extremities (in the Mutsaard and some statistical areas of the Heembeek district) and in the south of the municipality (in some statistical areas bordering of the municipality (in some statistical sectors along the Avenue Louise and in the Boondael district) as well as in the Petit Sablon statistical sector (south-east of the Pentagon).

In general, the share of the population living on **unemployment benefit, a disability benefit or a social assistance** allowance is higher in the City of Brussels than at the regional level. The share of inhabitants aged 18 to 64 who are entitled to a social integration income increased between 2005 and 2014. Finally, almost a third of the inhabitants of the municipality are beneficiaries of the increased intervention (BIM) for health care insurance and this proportion is around 40% for the youngest (under 18) and oldest (65 and over).

A large proportion of children (28%) are born into households without a working income in the City of Brussels (a higher proportion than in the Region). With four places for every ten children (under 3 years of age), the coverage rate for children of this age is higher in the City of Brussels than at the regional level. However, the coverage rate is significantly lower in the most disadvantaged parts of the municipality - where there are many children (in Laeken) than in the more affluent neighbourhoods.

In **secondary education**, pupils living in the City of Brussels are slightly more likely to follow technical and vocational courses of study and slightly less likely to follow the general course of study compared to the Brussels Region. In addition, 31% of the girls and 36% of the boys in secondary education (all streams) have at least one education (all streams combined) are at least two years behind in their schooling (higher proportions than at the regional level).

On average, rents and property prices in the City of Brussels are relatively close to those recorded at regional level. Almost three quarters of housing are occupied by tenants, which is a higher share than the regional average.” (IBSA, 2016)

A further IBSA report from December 2020 details the impact of the covid-19 pandemic, and identifies specific issues and points of action for moving out of the crisis it will (and is) generate(ing).

The average taxable income per inhabitant in 2015 for the City of Brussels was 12,211 €.

The number of social housing complexes in 2019 in the City of Brussels was 8,191.

3.2.3.2. Employment

In 2018, 46,614 people living in the City of Brussels were employed, versus 15,035 unemployed in 2020.

The IBSA report presenting the City of Brussels notes a number of elements regarding employment rates:

“At the municipal level, **activity rates** are lower than the regional average among 25–64-year-olds, especially for the 25-64 year olds, especially for women. The activity rate for young people (15-24 years old) is slightly higher than the regional average, which may partly reflect a lower proportion of young people. This may partly reflect a lower proportion of young people in higher education.

The **municipal unemployment rate** (25%) is higher than the Brussels average for both men and women. Here again, the differences between the working-class neighbourhoods (Poor crescent) and the more affluent neighbourhoods of the municipality are very significant, where the unemployment rate can vary by as much as three times depending on the neighbourhood.

With regards to **domestic employment**, the City of Brussels has a very large number of jobs on its territory. It is home to 14% of the self-employed and 37% of the Region's employees. The most important sectors are, in order of importance (in terms of number of jobs), public administration, business services and financial, insurance and real estate activities. This observation is linked to the very high proportion of offices in the municipality.” ([IBSA, 2016](#))

3.2.3.3. Innovation

The Region has published a “[Plan for Innovation](#)”, managed by the regional institute “Innoviris”. Its focus is on research for innovation, and identifies various Strategic Innovation Domains (1 transversal, 5 specific), towards more prosperity, resilience, sustainability, and well-being. The 1 transversal innovation domain is the **development of advanced digital technologies & services**. The 5 specific domains are the following:

- Climate: Resilient Buildings & Infrastructures;
- Optimal use of resources;
- Efficient and sustainable urban flows for an inclusive management of urban space;
- Health & Personalized and integrated care;
- Social innovation, public innovation and social inclusion.

In addition to this Plan, the Region has developed several “Hubs” and policies linked to these spatial sites in order to foster research, development, and innovation. [Hub.Brussels](#) regroups these tools and strategies and is a key reference for entrepreneurs.

A strong focus has been placed on the development of a circular economy, with various [leverage points for innovation](#), and the development of a legal context ([CIREDE](#)) that would favour the development of this sector. In the City of Brussels, two economic zones (Tanneurs and BE-HERE / Green Bizz) have been developed as sites for budding green entrepreneurship.

3.2.3.4. Activity sectors

The activities sectors of the Brussels Capital Region and the City of Brussels remain quite diversified and multiple. Known for housing the European institutions and a rising international class of service-sector workers, Brussels generally also maintains a strong working-class base and population, though it suffers from an increasing mismatch between job offers and local inhabitants' education levels and/or general training.

[A publication presented by Perspective Brussels in 2012](#) attempted to answer the question “What remains of the **industry sector** in Brussels, the most important of all Belgian cities for over a century?”. Its observation was that between 1997 and 2011, **production activities** (broadening the term of “industrial activities”) **lost a quarter of the space** they previously occupied, which was reallocated to other land uses, particularly in the city centre. However, a simultaneous development of new production sites, in the north and south of the region, located in closer

proximity to highways (and thus improving truck-based logistics), compensated somewhat for this overall loss. It further details that:

“The metal production/mechanical construction sector, a long-established presence, has maintained its unique characteristics – not only thanks to the two large car assembly and aeronautical construction factories, but also thanks to the STIB and SNCB repair workshops and the smaller private sector workshops. Another significant area is logistics where large warehouses mainly supply wholesalers whereas other warehouses prefer for example activities involving recycling, tyres, or second-hand clothes. So, there is a wide range of activities and the semi-industrial property market – a term used by brokers to combine production activities and the logistics – is a market with strong supply and demand, to the point where supply does not always sufficiently meet demand. The industry sector is therefore still looking for its place in Brussels.”

The **canal** remains a key logistical and productive zone (p. 10, see map below), but large parts of its zones have become increasingly converted to housing, particularly in the central zone (border Molenbeek and City of Brussels) (p. 20).

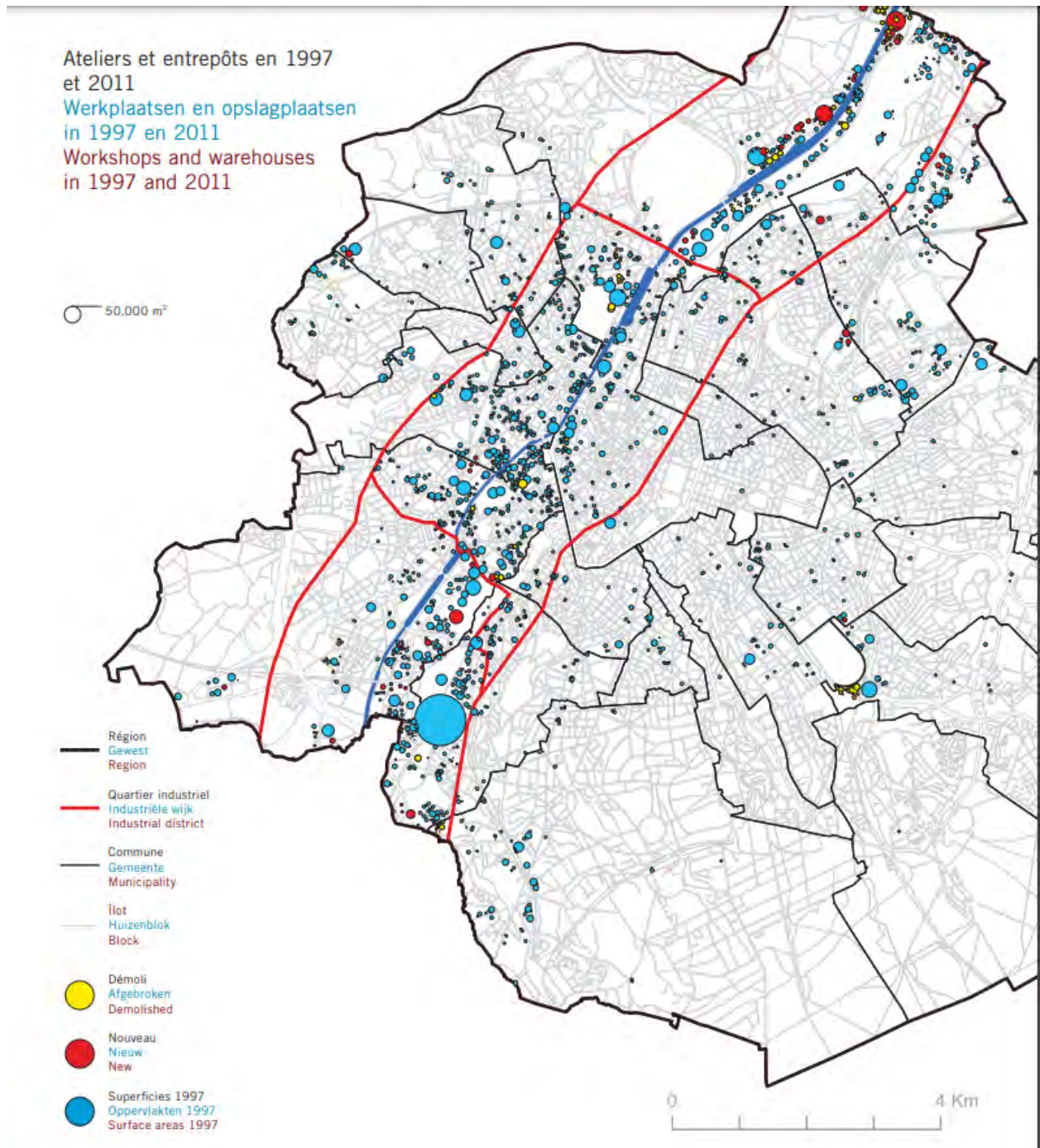


Figure 3. 24. Location of workshops and storage space in 1997 and 2011

In the City of Brussels, **two major hubs of economic and entrepreneurial development** (Tanneurs and Be-Here/Green Bizz) have seen the light in the Marolles and Laeken (Tour & Taxis) neighbourhoods. These are key spaces for small-scale entrepreneurial development, focusing on circular economy and local production/consumption. Although the Laeken hub is in a classically industrial area, on part of the site of the former railway zone Tour & Taxis, the Tanneurs in the Marolles are in a densely built-up residential area, and thus are forging very interesting new dynamics in terms of production and logistics models.

Urban agriculture is not an extensively developed sector in the City of Brussels, excepting in small residual pockets such as Haren (known for being the site of invention of the *chicon*, a typical Belgian vegetable that can be grown in basements) and Neder-Over-Heembeek. Urban vegetable gardens, managed by individuals or collectives, remain a part of the urban fabric, but are quickly losing ground in the face of housing needs and construction projects, and are becoming increasingly fragmented even if they are not decreasing in number (and in some parts are even popping up exponentially) (Zitouni et al, 2018). The City is currently developing a multifold Urban Agriculture strategy, fitting within the Regional Good Food Strategy (objective: 35% of local vegetable production by 2050), that aims to promote both citizen and professional access to land for urban agriculture. The Region has produced a series of tools supporting urban agriculture within its territory, including a cartography of productive spaces.

As the capital of Europe, the Brussels Capital Region, and consequently its historical centre (the so-called “Pentagon” zone of the City of Brussels), is very marked by the **tourism industry**. In 2019, the City of Brussels counted almost 4 million overnight stays in its hotels, out of a total of 7 million in the Brussels-Capital Region (IBSA, 2020). *(A number that was severely impacted by the covid-19 epidemic, with a mere 870,000 overnight stays in the City and 1,6 million in the BCR in 2020.)*

It must be noted that this concentration of touristic activity is very much spatially centred around the old historical centre and the European institutions (Leopold quarter), and that the City’s elongated shape means that many of its neighbourhoods are not impacted (positively or negatively) by this industry. Some municipal initiatives, such as the *Parcours BD* are attempting to decentralise this tourist inflow.

The old city centre is otherwise very much characterised by the presence of **offices**, also markedly in the Quartier Nord and Quartier Léopold, and by extensive **commercial activity**. The canal zone retains some **industrial activity** (with 158 industrial zones and terrains in 2019), though the zone adjacent to Molenbeek and Laeken is finding new economic orientations, with a **booming cultural sector** and processes of **gentrification** taking place. The northernmost parts of the canal (along Neder-Over-Heembeek and Haren) remain industrial, linked to portuary activities. There is little **manufacturing** taking place within the municipality, a trend that is marked in the whole of the BCR.

3.2.3.5. Facilities

It can be noted in the map describing cultural facilities that the historical centre (Pentagon) concentrates a huge amount of diverse cultural activities (cultural centres, museums, theatres, cinemas, etc.), but that the peripheries, and in particular the northernmost part of the City (NOH, Haren) are significantly less dense.

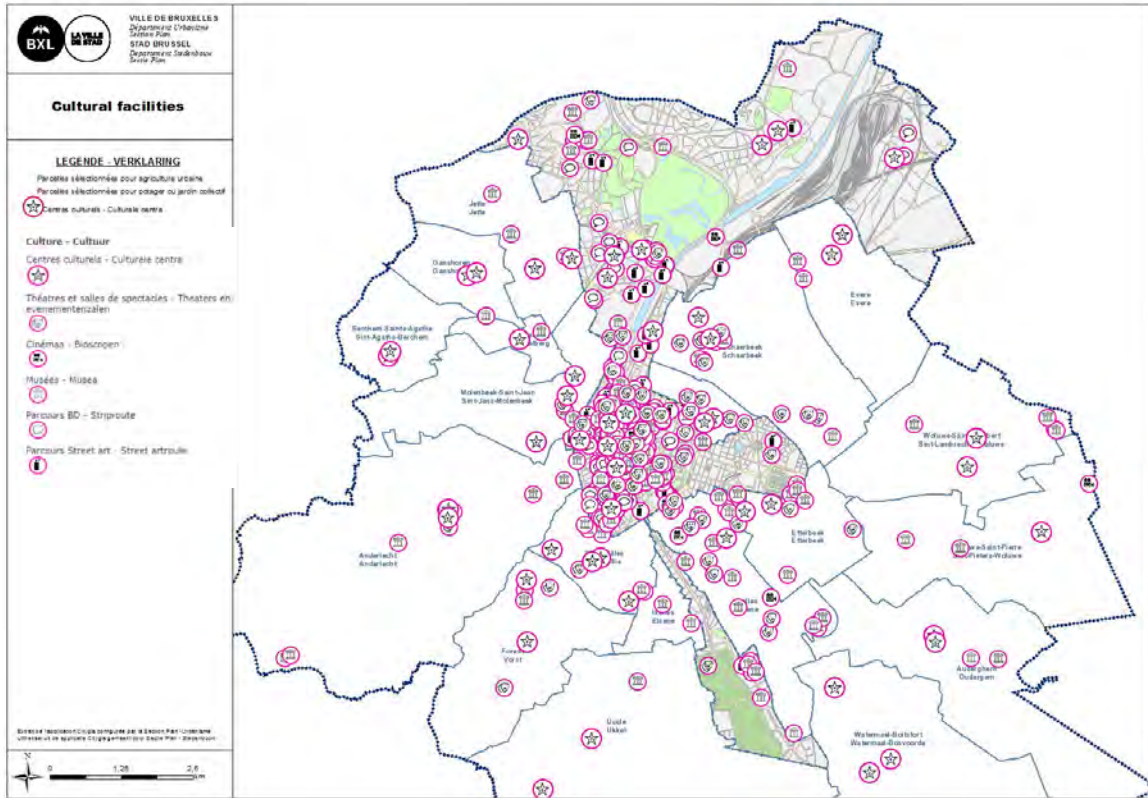


Figure 3. 25. Cultural facilities in the City of Brussels and BCR

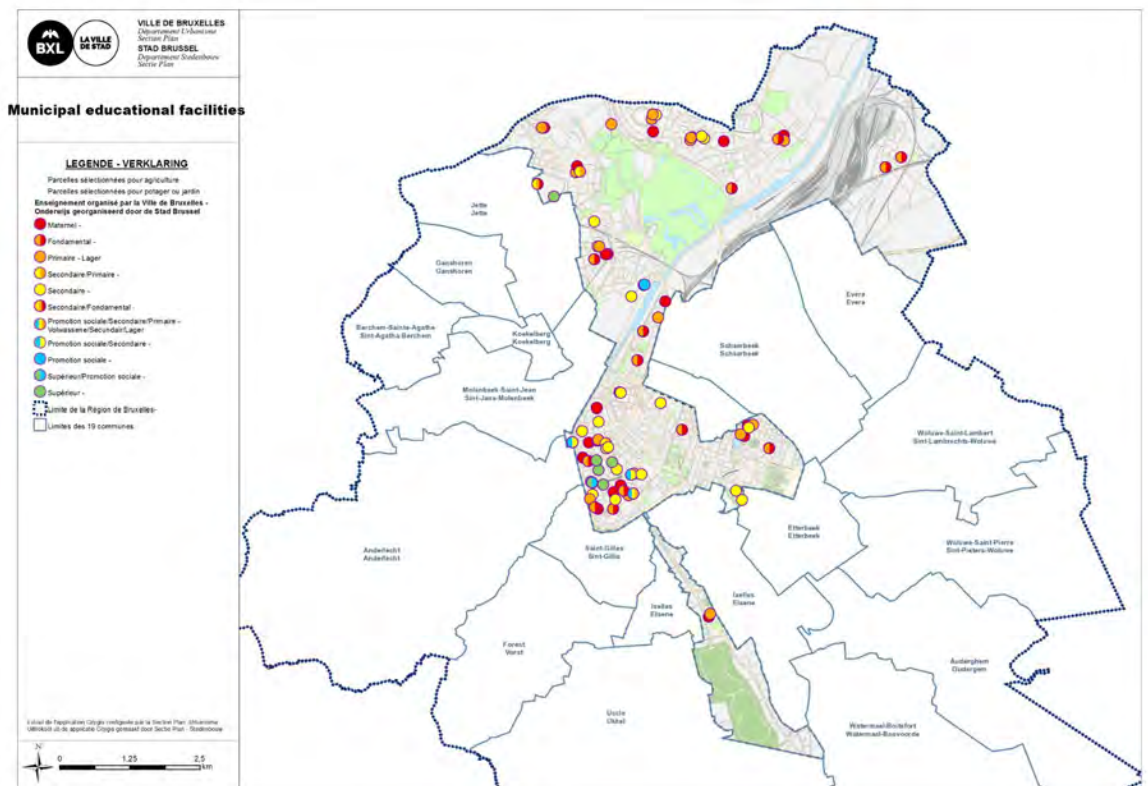


Figure 3. 26. Municipal educational facilities

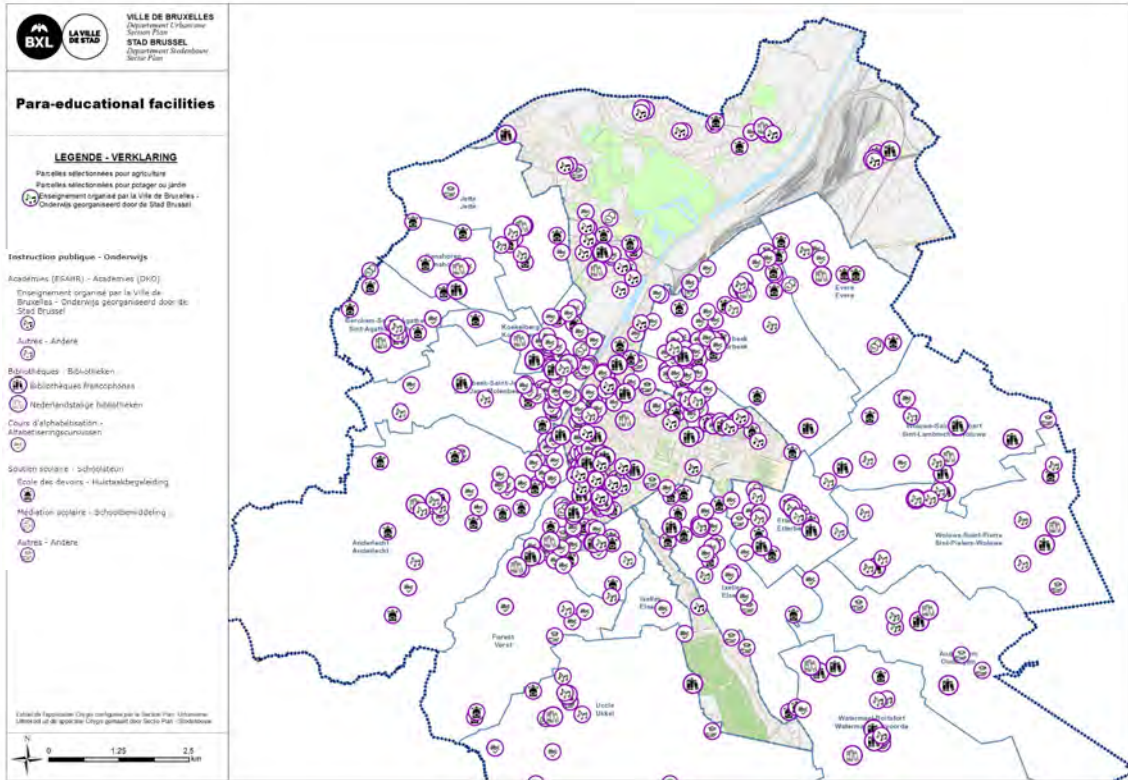


Figure 3. 27. Para-educational facilities

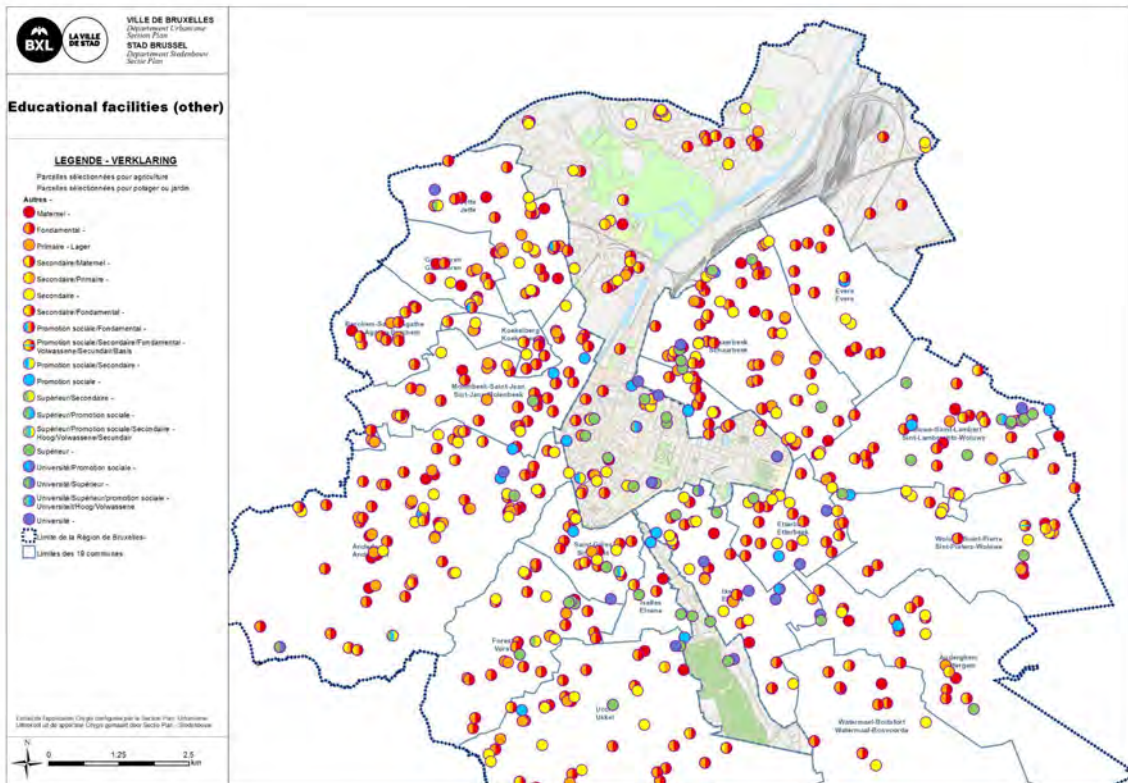


Figure 3. 28. Other education facilities (other than municipal and para-educational)

On a purely spatial basis, it seems that public educational facilities (for schooling) are reasonably well distributed across the neighbourhoods of the City. However, this does not consider *access* to these schools (there is a problem with discriminatory practices linked to intersectional factors of socioeconomic and migratory/racial backgrounds). The municipality is not an exclusive provider of education, and students have a generally wide variety of options, though it may mean that they have to commute (especially for secondary education). Para-education facilities such as libraries, academies (music, art), and after-school support, however, have an uneven spatial distribution, and are concentrated in the Pentagon.

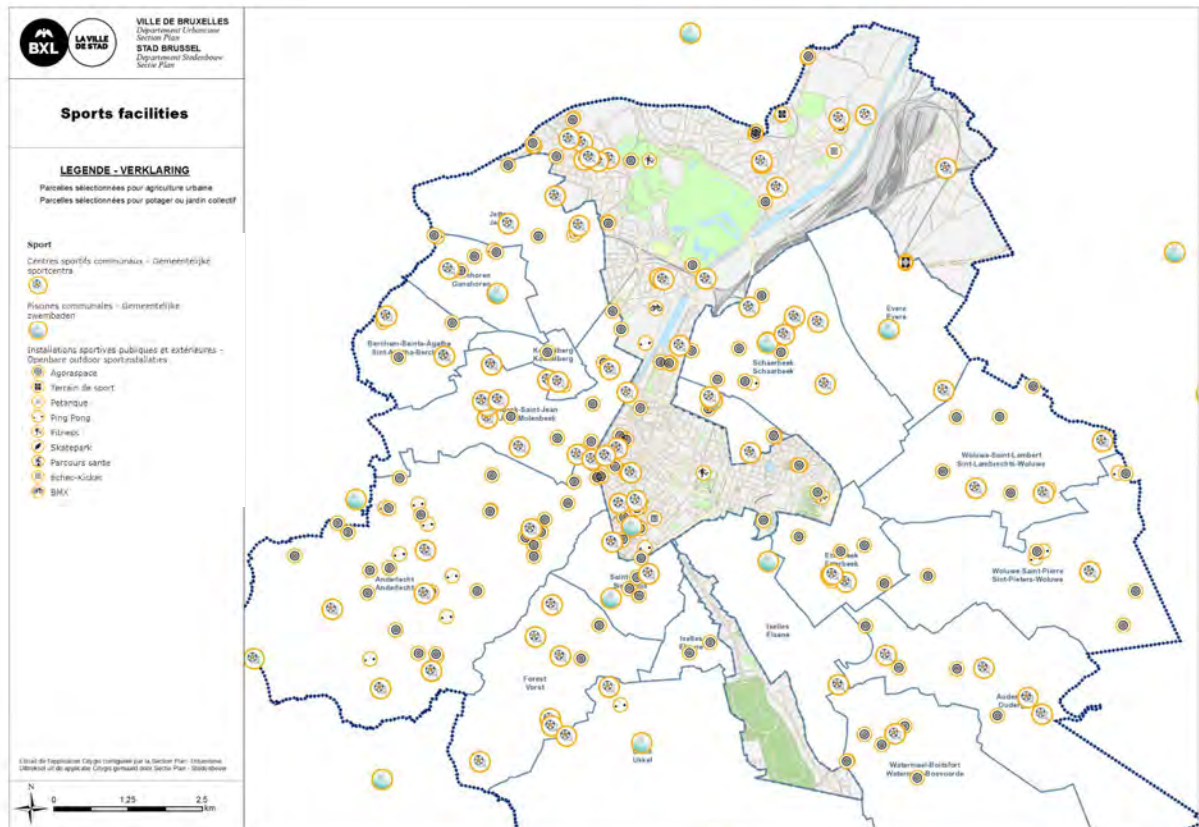


Figure 3. 29. Sports facilities

3.2.4 Conclusion / Synthesis

In the IBSA report (2016), we note a number of key issues concerning the Brussels demographic. One of these is **population growth**, with its associated housing needs, lack of public services, and many young children, as well as an intergenerational gap in public services, and specific needs associated with international migration (administrative, economic, socio-educational, and health support). The population growth of young adults, linked to the European institutions, has at times been at the expense of less affluent populations, generating gentrification dynamics and tensions in the housing market.

Another is **precarity and polarisation** linked to financial precarity, and a growing concern with education (qualification for the job market, intergenerational dynamics, language skills, discrimination in recruitment procedures, drop out levels from training programs).

Housing conditions, and the precarity linked to an old/aging housing stock (both private and public), is another key issue. Families in situations of socioeconomic precarity tend to be concentrated in certain neighbourhoods and are not always well integrated with the rest of the territory (increasing the polarisation of society). Although social housing makes up a significant part of the housing stock, waiting lists are very long (up to 10 years to get access to social housing).

Brussels is faced with the challenge of **reconciling metropolitan functions with the living environment of inhabitants**. New urban projects can sometimes be developed at the expense of established communities (encouraging gentrification dynamics in a polarised context). The conversion of industrial wastelands such as the Tour & Taxis site need to consider mixed use development. There is a continued tension between local, national, and international functions and uses of urban space. Additional pressures come from the large number of students, the structural issue of office building vacancy (sometimes linked to old housing stock contaminated with asbestos, but not only), and the need for quality and affordable housing to reduce emerging socio-economic and spatial disparities.

The current **density of urbanisation** means public spaces (especially green spaces) become lacking and are unevenly distributed. There is an increasing need for more extensive cycling infrastructure, rethinking through versus local traffic. This is linked to general **mobility** issues, and to the need of connecting the city centre with its suburbs (especially Neder-Over-Heembeek and Haren which lack “structuring” rapid transit lines: see Tram 7 project). Regional Plans such as “Good Move” and its municipal specification will need to think through multimodal transport options, but also local goods distribution logistics (density of economic activity in city centre).

Finally, **security and policing issues** are a reality on a daily basis and have been critiqued by certain stakeholders for the racialised and discriminatory aspects of policing practices.

In terms of **climate adaptation**, it will be necessary to face increased flooding risks and urban heat island effects, involving actions taken at micro, meso, and macro scales. The newest Climate Action Plan of the City of Brussels will be an essential step in mobilising a diversity of actors towards acting for carbon neutrality by 2050.

3.3. Parishes/quarters levels: Neder-Over-Heembeek : Versailles, Val Maria and Craetbos



Figure 3. 30. Stylised map of Neder-Over-Heembeek

Constituted of former villages, the northern area of Brussels experienced a very rapid urbanization after its annexation to the City in 1921, resulting in major changes in the landscape and in the population structure, passing from a homogeneous population to a very diverse population from both a social, linguistic, and a cultural point of view. Except for the industrial zones linked to the canal, this zone presents itself as a set of very heterogeneous residential areas.

Neder-Over-Heembeek is a predominantly residential neighbourhood, with an ancient agricultural past that marks its spatial distribution to this day, a more recent industrial past and present linked to port activities due to the proximity to the canal, two commercial centres of activity (De Wand and Peter Benoit/François Vekemans), and a rising proportion of social housing developments that is presently changing the face of its social and economic dynamics.

The selection of the study area was guided not just by statistical and socioeconomic indicators, but also by qualitative and subjective elements that emerged throughout the interaction with the study area. One of these determining sources of information is a subjective mapping exercise generated by artists in 2016, which can be seen below.

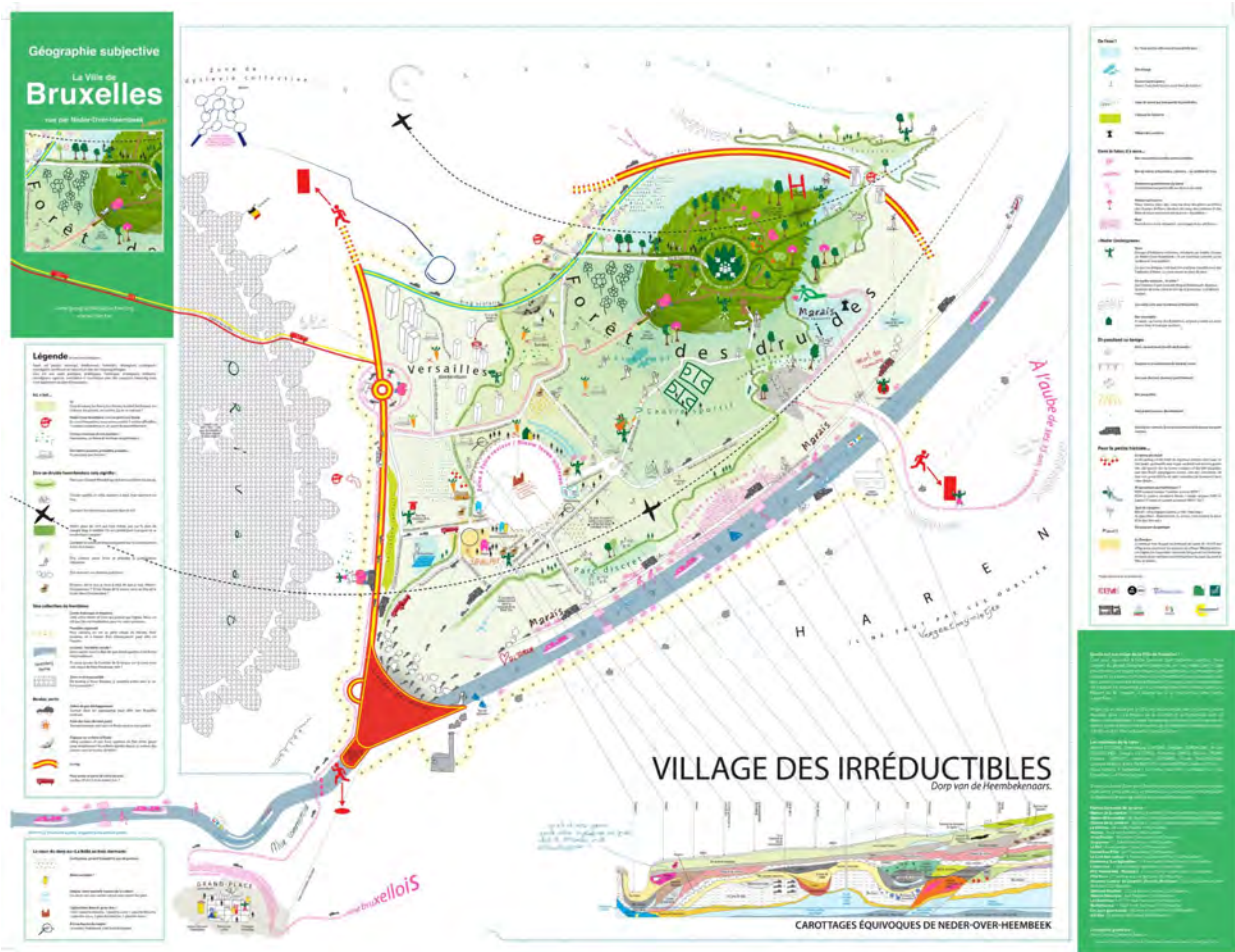


Figure 3. 31. Subjective map created on the basis of participatory workshops in Neder-Over-Heembeek

The funnel shape that can be seen in this map is extremely indicative of the socio-spatial isolation experienced by inhabitants of Neder-Over-Heembeek. Wedged between the canal and the royal domain, and delimited to the north by the ring road, access points in/out of the neighbourhood are few and far between. The Van Praet section in particular is the source of a wide variety of problems, not least of which is dense mobility problems, blocking easy access to and from the neighbourhood, and the creation of noise and air pollution in this zone which makes it unpleasant for “soft mobility” practitioners.

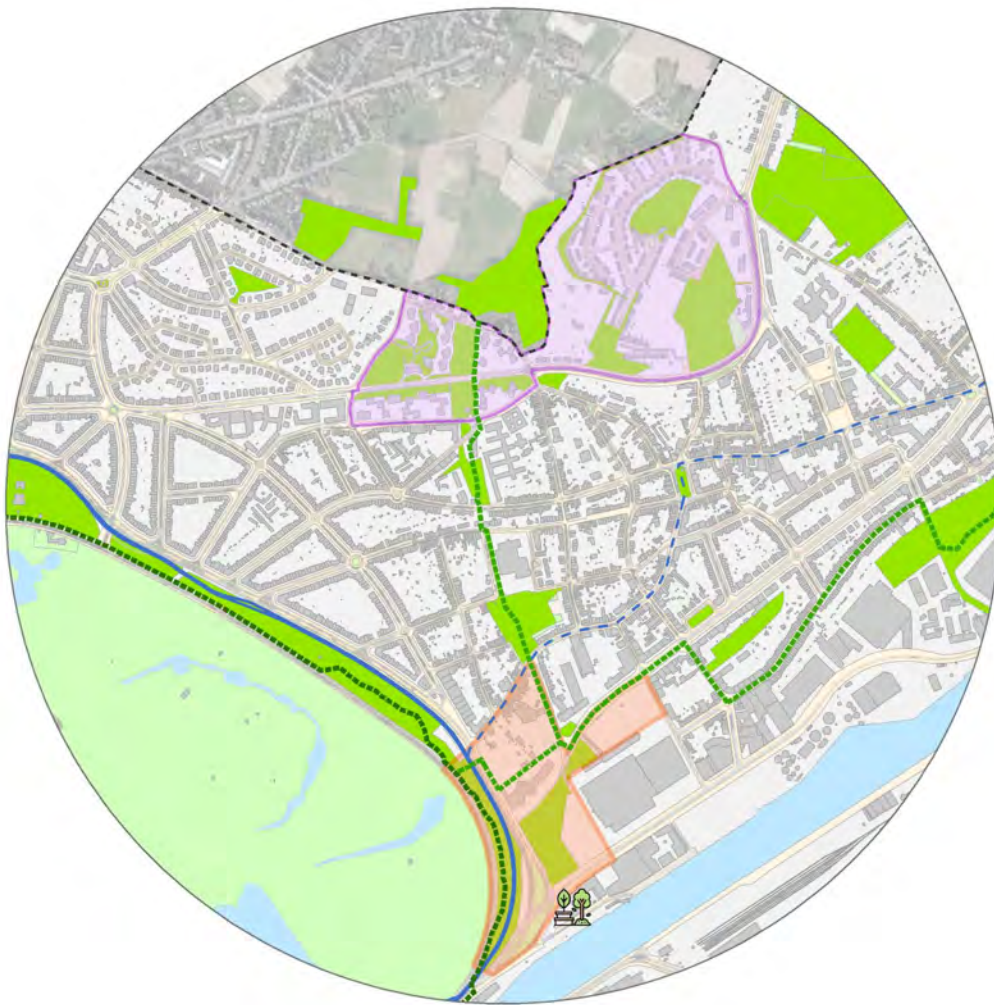


Figure 3. 32. Map indicating the study area (purple polygon), the ZIR4 (orange polygon), the future tram project (blue line), and the green spaces and major green arteries

Part of the issues related to the Van Praet zone are currently being tackled at municipal and regional level, through the creation of a Masterplan for the so-called ZIR4 or Zone Van Praet (seen in the map above as an orange polygon; in purple is the study area), which will enable the creation over several years of a requalified and new mixed-use neighbourhood. At the regional level, the main arteries leading to the Van Praet bridge, namely the Chemin des Croix de Feu, will be in part down-classed to create ‘friendlier’ streetscapes and to reduce through-traffic on the borders of NOH.

In statistical terms, Neder-Over-Heembeek is composed of two neighbourhoods: Heembeek and Mutsaard. Beyond statistics, the neighbourhood is composed of several zones that have not been the subject of a global planning reflection in order to better articulate them:

- The old village of Heembeek composed mainly of terraced houses with a commercial core
- The large social housing districts: Versailles and the Val Marie district consisting of newly renovated single-family houses and a “Cité Jardin”

- The neighbourhood of the Mutsaard / Forum consists of large buildings and houses. This neighbourhood has an important commercial core: “De Wand Street”. Four small blocks of social houses are located on this street.
- The new allotments (old fields) and zones of construction of enclosed housing.

This may result in a strong subdivision, with very different types of population that do not really communicate with each other. These developments have raised concerns among the population, particularly among "old" inhabitants, who fear that the neighbourhood will lose its identity (village character, green spaces) and a certain quality of life to which they are much attached.

Overall, the economic indicators are much more favourable than in the more central neighbourhoods, but the gaps are very sharp between the two social housing sites and the rest of the neighbourhood. The search for a balance between the desire of the inhabitants to maintain the quality of life of their neighbourhood and the interest to open the neighbourhood to the outside is one of the main challenges for the coming years.

3.3.1 Territorial description

Neder-Over-Heembeek is a former village in the Senne valley and oscillates between a rural past and an industrial and residential present. Recent demographic pressures have led to the emergence of new housing projects, which have put considerable pressure on the green spaces and natural setting of this district, which still has predominantly rural typology.

On the outskirts of NOH, on the border with the neighbouring Flemish region, the Versailles and Val Maria social housing complexes together amount for 360sqm of social housing. Versailles was built between 1968 and 1983 based on architectural principles of Le Corbusier (*parc habité*), and Val Maria in the decade following based on “garden city” principles.

3.3.1.1. Biophysical characterisation

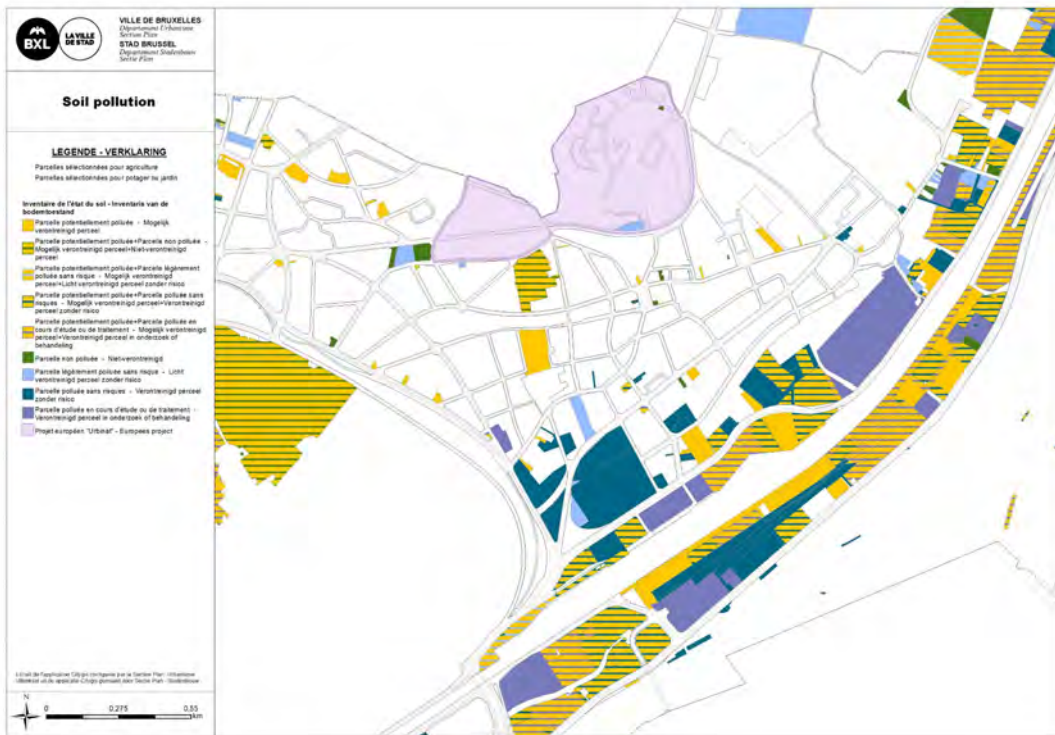


Figure 3. 33. Soil pollution in NOH

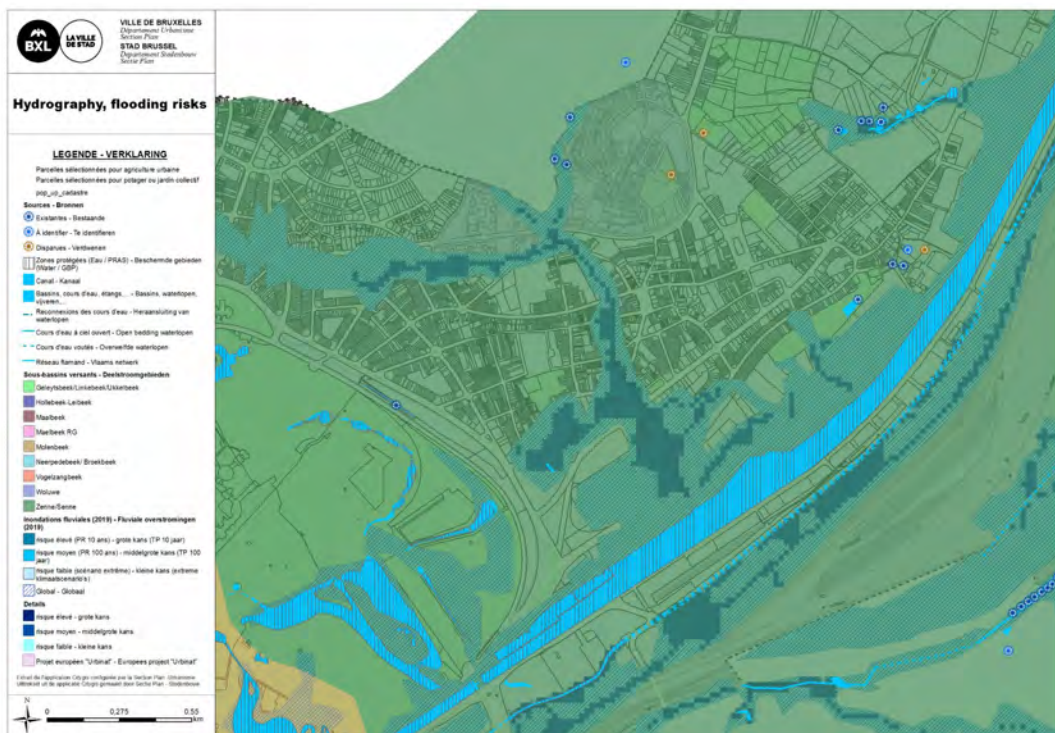


Figure 3. 34. Hydrography and flooding risks in NOH

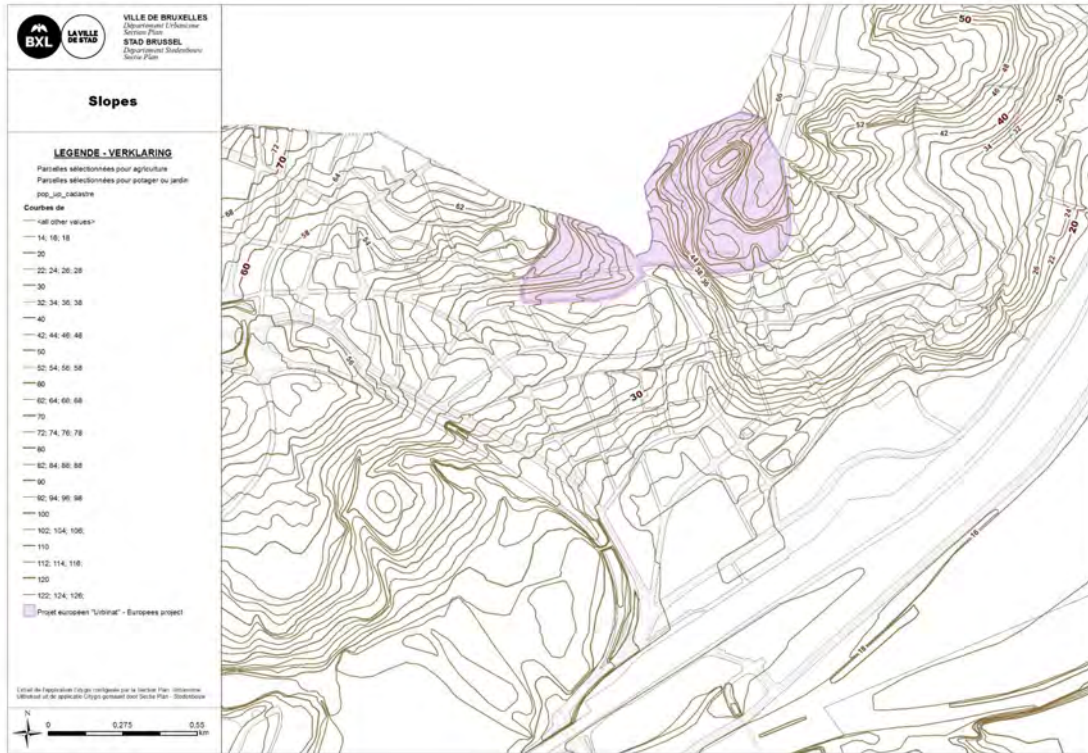


Figure 3. 35. Slope lines in NOH

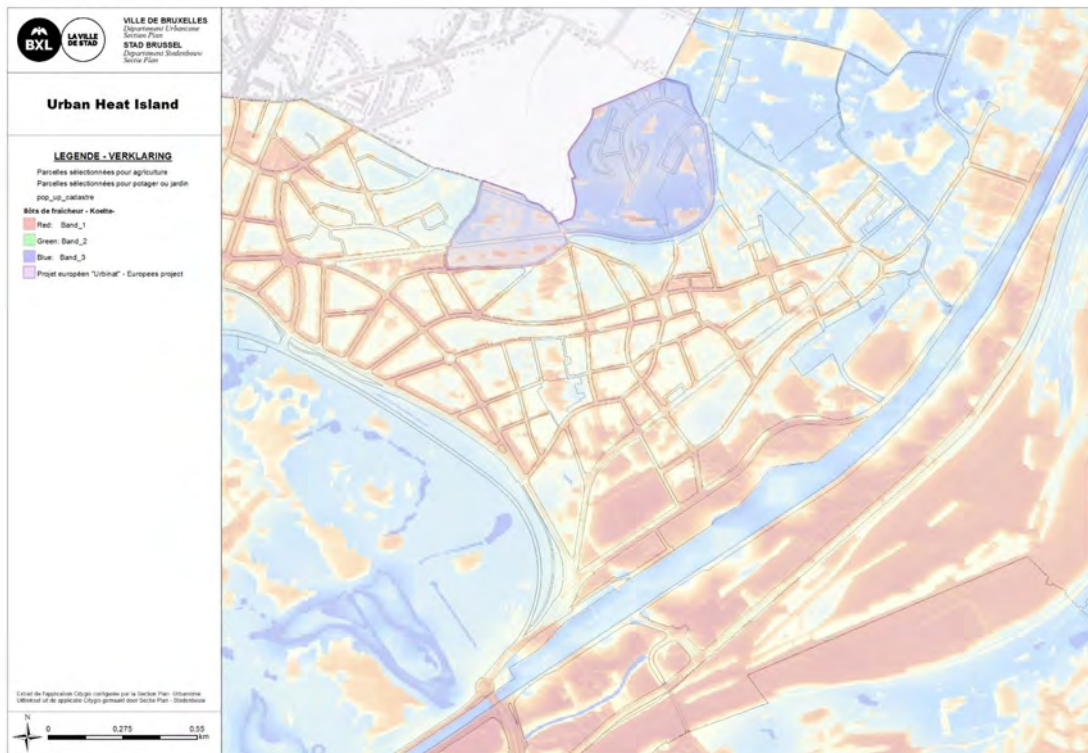
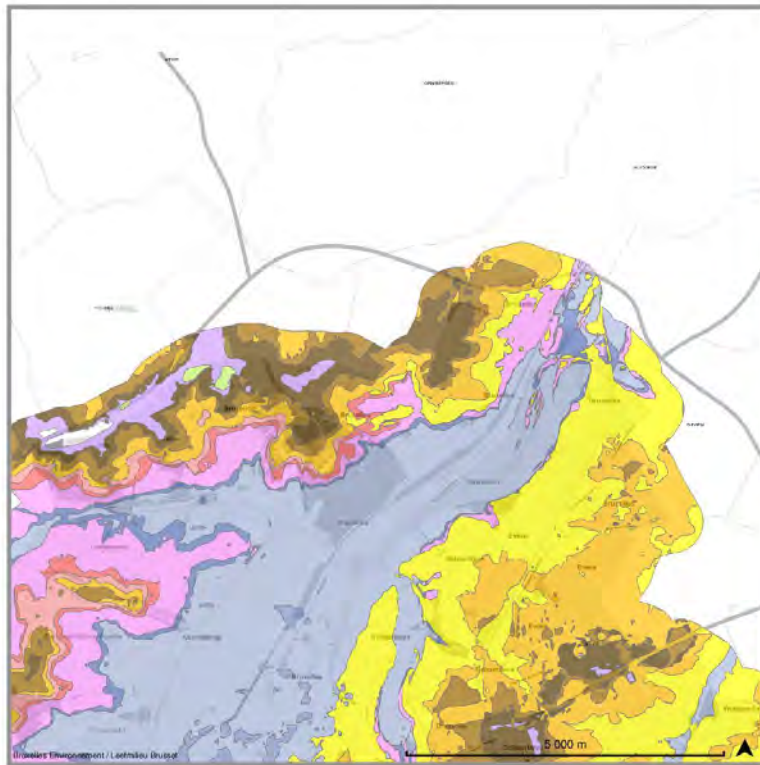


Figure 3. 36. Urban heat islands in NOH



Geology

Carte géologique

- US/RBC_21 Sables de Diest
- US/RBC_22 Sables de Boldeberg
- US/RBC_23 Sables et argiles de Sint-Huibrechts-Hern
- US/RBC_25 Sables de Maldegem (membre de
- US/RBC_31 Argiles de Maldegem (membre de Unsel et
- US/RBC_41 Sables de Maldegem (membre de Wermel)
- US/RBC_42 Sables de Lede
- US/RBC_43 Sables de Bruxelles
- US/RBC_44 Sables de Gent (membre de Vlierzele)
- US/RBC_51 Argiles de Gent (membre de Merelbeke)
- US/RBC_61 Sables et argiles de Tielit
- US/RBC_71 Argiles de Kortrijk (membre d'Aalbeke)
- US/RBC_72 Sables et argiles de Kortrijk (membre de
- US/RBC_73 Argiles de Kortrijk (membre de Saint Maur)
- US/RBC_81 Sables de Hannut (Membre de Grandglise)
- US/RBC_82 Argiles de Hannut (Membre de Lincout)
- US/RBC_91 Craies de Gulpen
- US/RBC_92 Socle Paleozoïque

Fond de plan:
 Bruxelles Urbanisme / Leidsma Brussel
 CRB - CIB

bruxelles
 environnement
 Bruxelles.epp

Figure 3. 37. Geological characteristics in NOH

3.3.1.2. Land use/ land cover

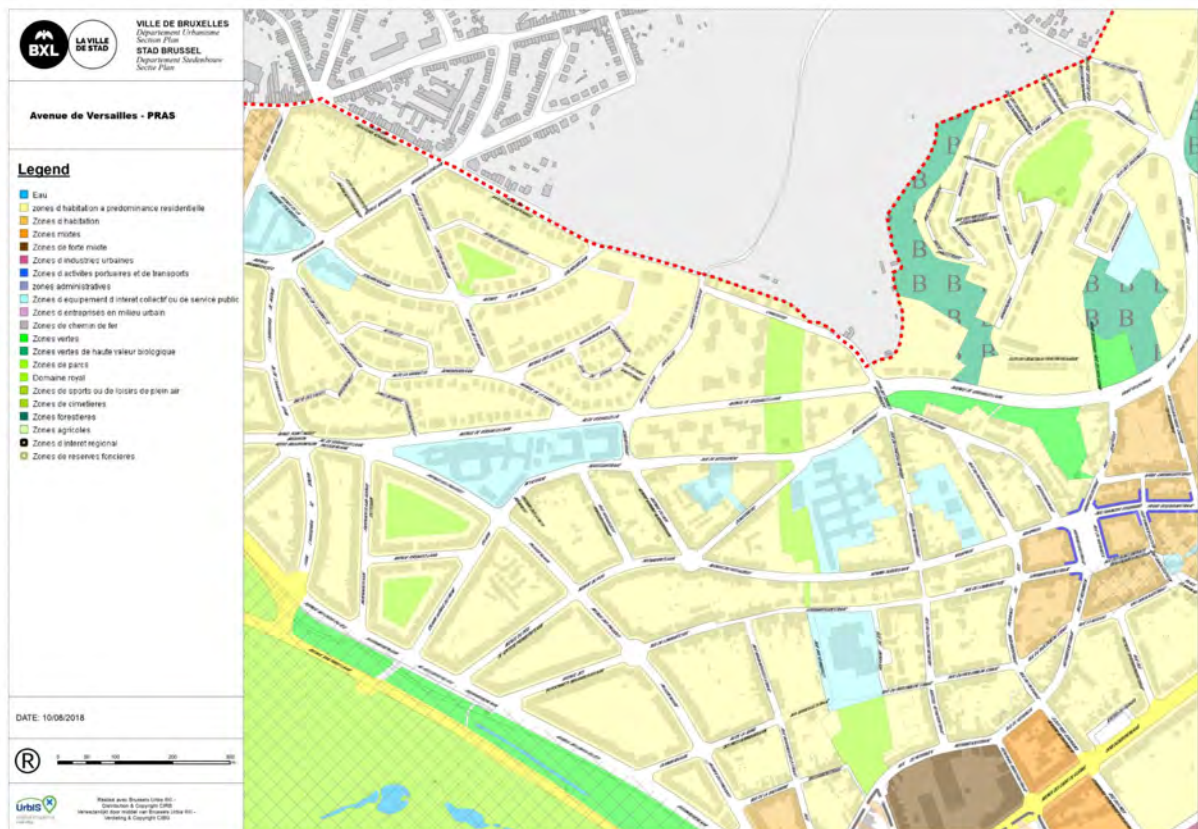


Figure 3. 38. PRAS (Land use affectation plan) around the Avenue de Versailles

The Brussels agglomeration has encountered rapid urbanisation in the past decades, with soil sealing reaching 43% in recent years. This trend is particularly visible in NOH, as it was one of the last land reserves of the municipality and has thus been the site of many building projects, such as the Plan 1000 Logements.

The neighbourhood of NOH is still characterised by a predominance of public land and buildings (many municipal lands, but also some other public institutions).

It is important to highlight the presence of the old highway tracing in the current land use allocation (PRAS), the so-called *coulée verte* that is a significant artery potentially connecting Versailles with the Van Praet zone (the main connection point towards the city centre), via the swimming pool / sports complex. Coincides with the old walking routes identified and maintained by the Promenade Verte - Groene Wandeling association, which then extends on further upwards towards Val Maria and Nos Pilifs. There is significant potential here to improve intra-neighbourhood mobility and walking practices (something which, considering the covid-19 pandemic, remains essential for everyday wellbeing). It will be important to consider what is susceptible to being built up considering the current PRAS, and what is rather already “protected” as a green space.

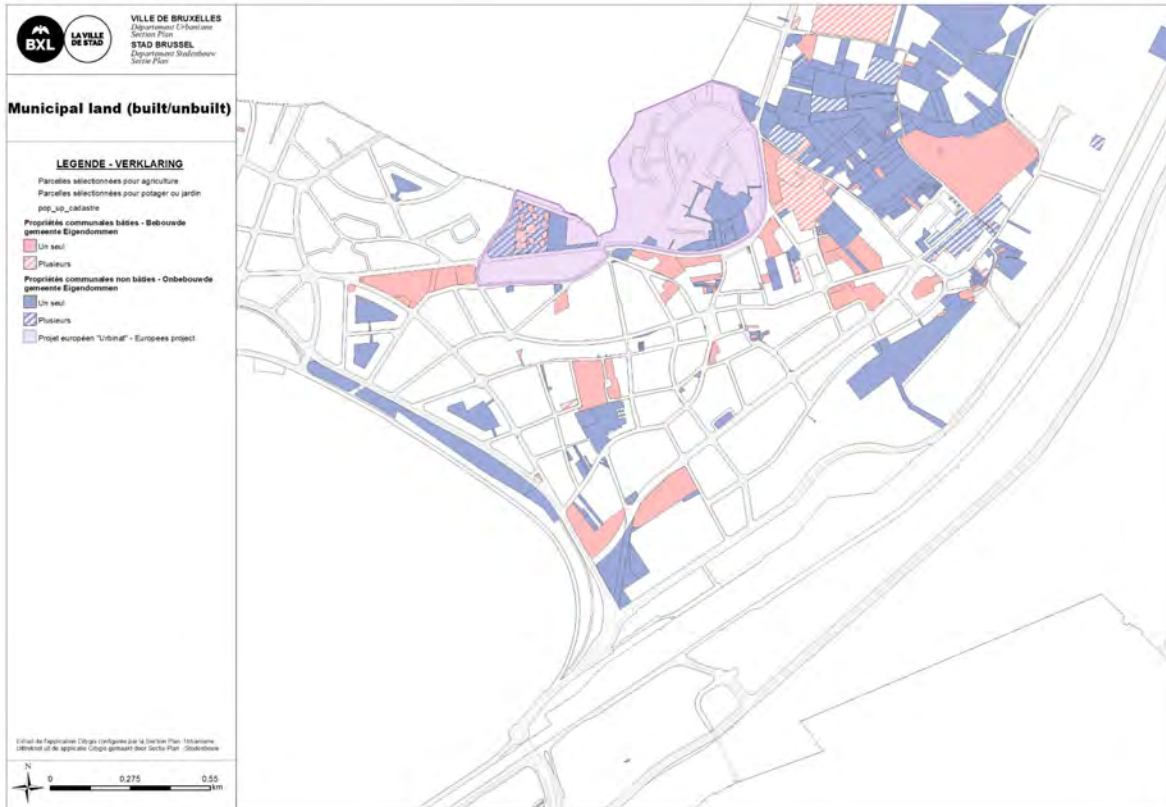


Figure 3. 39. Municipal land properties (built and unbuilt)

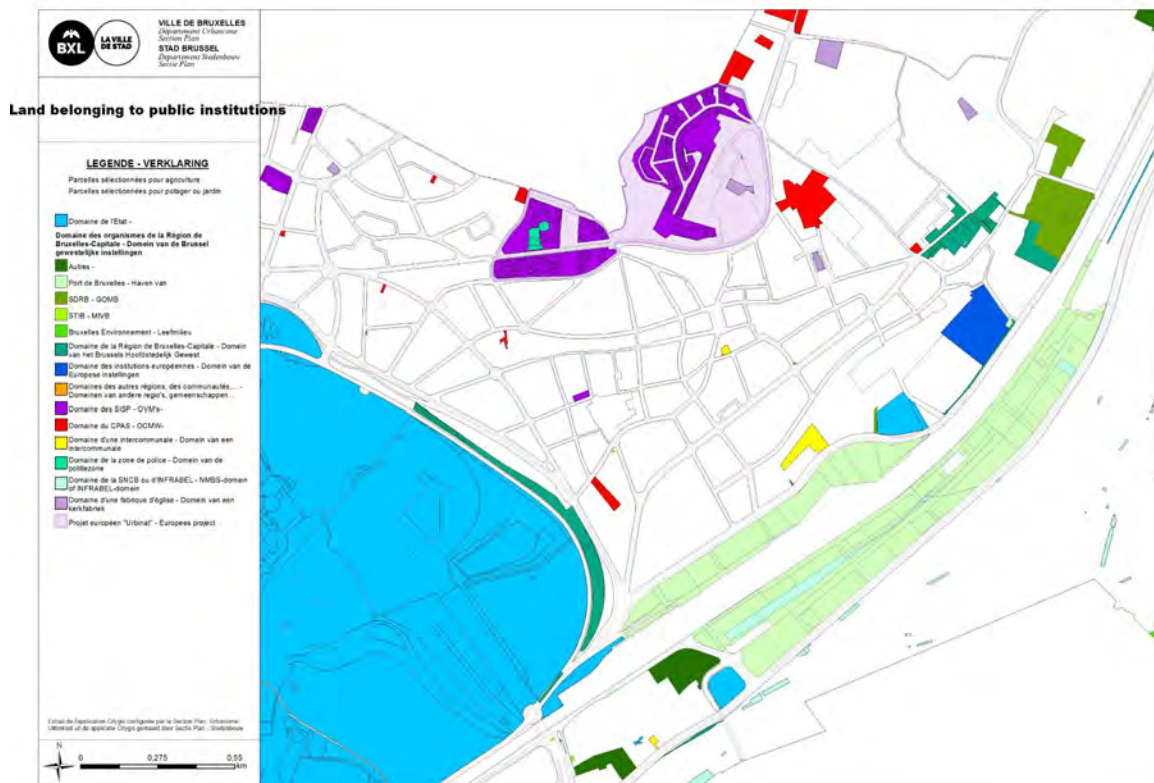


Figure 3. 40. Land belonging to public institutions (non-municipal)

3.3.1.3. Transportation network and services

The use of the car remains the dominant transport modality in NOH. This is in part because of the mismatch of employment opportunities and employees: only 25% of movement linked to NOH comes from the BCR. Much more of them come from the north of BCR, from the Flemish Brabant, notably from the neighbouring Flemish communities of Strombeek-Bever, Vilvorde, Grimbergen, Meise et Wemmel, Merchtem and Zellik (STIB, 2020). Trips outwards from NOH and towards the BCR go especially to Schaerbeek and Evere (the east of the BCR), and to Anderlecht, Jette and Molenbeek (the west of the BCR).

However, it must be noted that many secondary school students go to Laeken and Quartier Nord within the City of Brussels, providing a more centralising mobility orientation. Young adults go a lot to the Docks or to the city centre (Pentagon) for shopping, hanging out with friends, or to eat out. This population is much more likely to use public transport (tram, bus) and electric scooters (a plethora of providers are now present on the BCR territory and are largely unregulated).

In 2018, the proportion of the population close to a public transport stop in Heembeek was 81.28%, and in Mutsaard was 73.98%. The part of the sidewalk in the streets in 2014 in Heembeek was 35.08%, and in Mutsaard was 34.93%. Public transport is densifying regularly in the neighbourhood, with added bus lines or extensions of existing ones and a new tram project. In addition, following the City's policy of "the City in 10 minutes" (*La ville à 10 minutes*), several actions are taking place, in part in the context of the new PCDD, to ensure that all city dwellers are within 10 minutes (priority: walking) of all essential facilities and services. For a finer grain analysis of "soft" mobility practices, please **refer to the territorial mapping protocol in 5.2.9**, but we can already note generally that there are many informal paths taken by inhabitants locally, but it is difficult to walk to centres of interest such as the city centre or Nos Pilifs. There is also a lack of cycling infrastructure in the neighbourhood.

NOH is a subjectively **relatively quiet** neighbourhood by Brussels standards, regardless of its car through traffic. However, there are a number of quite omnipresent sources of **noise pollution**: the highway ring road, which can be heard as a low hum at all times, the industrial zone and portuary activities which similarly establish a background decibel volume, and the passing of planes leaving from Zaventem and flying low overhead is a nuisance. A subjective map of sounds is being collated by BNA-BBOT, and has been fed into through the methodologies of Stage 2 (see Section 5), as it was previously remarkably empty (due to its peripheral nature, or the lack of distinctive/interesting sounds?).

Below, a map showing one of the preferred paths of the future tram line.

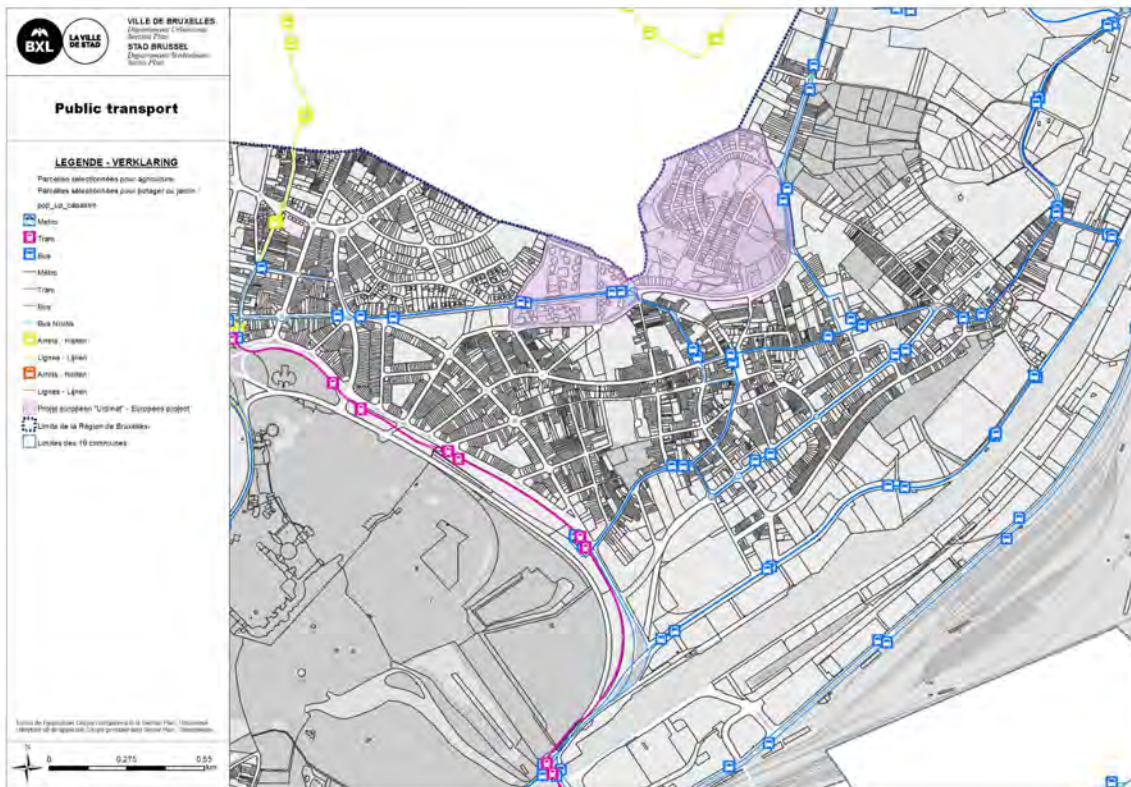
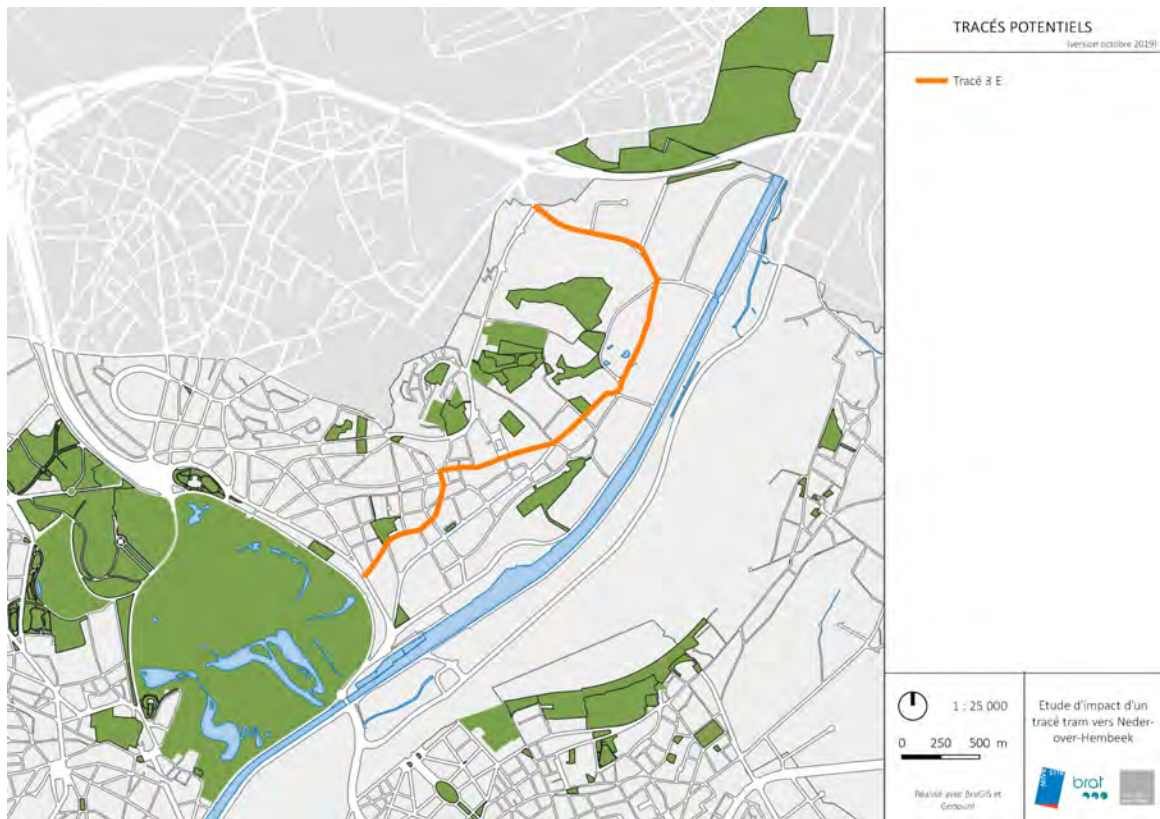


Figure 3. 41. Public transport lines in NOH

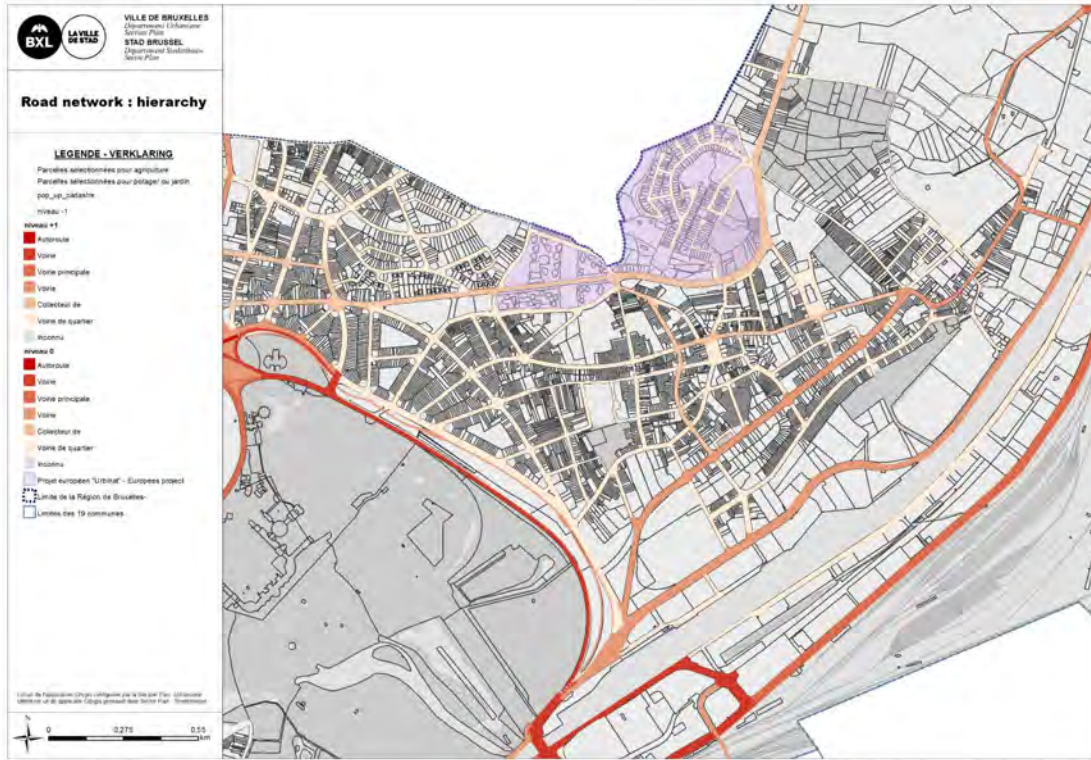


Figure 3. 42. Road network, showing road classification

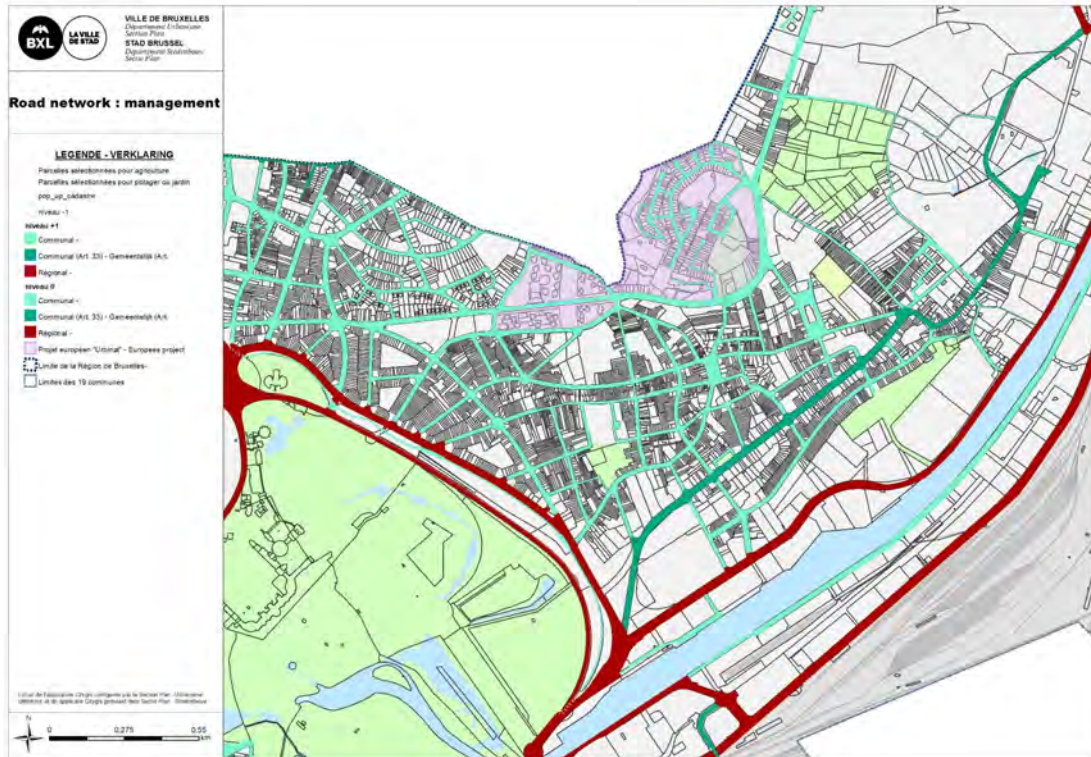


Figure 3. 43. Road network, showing management of network

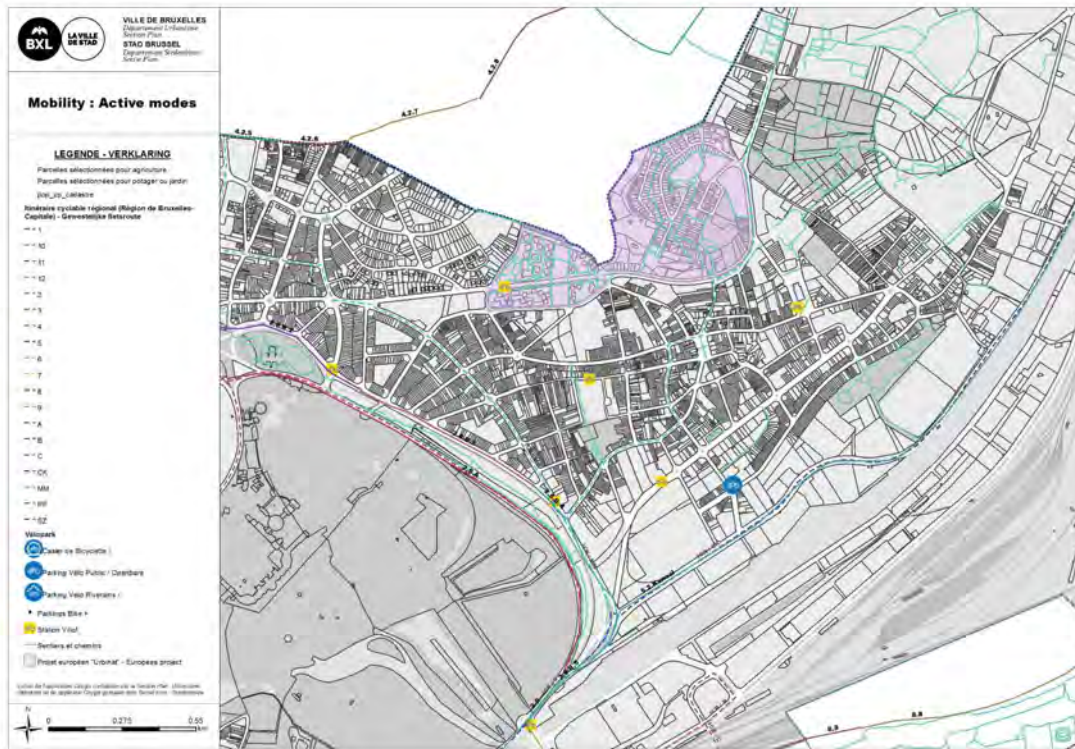


Figure 3. 44. Active modes (infrastructure enabling these modes)

3.3.1.4. Green Infrastructure and Biodiversity

In NOH, there is a high proportion of green spaces, as the neighbourhood retains some of its “village” characteristics. The predominant endogenous ecosystems are **wetlands**: in the northern part of the area there are some marshy alder groves (labelled as zones to be preserved by Bruxelles Environnement) which go on towards the Solvay complex. There are no Natura 2000 zones in the area.

The **Ransbeek** street also has a number of wetlands, which house a significant population of amphibians. In general, NOH has a number of fauna characteristic of these wetland ecosystems, and which are unique within the territory of the City of Brussels. A number of engaged citizens regularly meet during the migratory period of these amphibians to help them cross roads; a number of “*crapauducs*” (small tunnels in the street) are in discussion to defragment these green spaces and facilitate the migratory patterns.

The young **forêt urbaine** (urban forest), which previously was a monoculture of poplars used for matches and heating, is now composed of a mix of tree species specifically selected for their adaptation to this territory. Neighbouring this municipal project, the lands managed by Nos Pilifs and adjoining the military hospital are also of ecological interest (internal note from Nos Pilifs to the City of Brussels in the context of the PCDD). In the same zone, the **sports centre Petit Chemin Vert** neighbours a number of old vegetable gardens, which remain important biotopes for insects.

The **canal zone**, an industrial zone with many industrial fallow lands, also contains some wetlands and marshes. These are used by migratory birds that pass-through Belgium, which prefer sandy and wet ecosystems. They also house a number of insect populations. The association *Escaut sans frontières* regularly keeps an eye on this zone (amongst others) to document the emergent and often surprising populations and ecosystems.

In **Val Maria**, colonies of solitary bees have been observed, as they nest in the sandy soil underneath the streets and sidewalks. Comensia, the owners of the Val Maria social housing complex, use ecological management for their site, and partner with Nos Pilifs for the ecological landscaping of its public green spaces.

There are a number of **invasive species** that plague the BCR, the most notable of which are the *Prunus serotina* Ehrh., *Heracleum mantegazzianum* Sommier & Levier (bearclaw), and *Fallopia japonica* (Houtt.) Ronse Decr. (Japanese knotweed). Some tests have been done to manage Japanese knotweed using herds of sheep and goats, as an ecological management strategy on public land. The City published a guide for citizens to manage these invasive species on their land.

The **Plan Canopé** of the City of Brussels aims at preserving the existing tree heritage, increasing the amount of trees in Brussels, and to increase the mobilisation and knowledge of citizens with regards to urban nature. The City's gardeners are now implementing delayed mowing in order to preserve biodiversity (nesting of birds and insects, flowering of plants). The new public parks Craetbos and Rue Bruyn are being managed without pesticides by the City gardeners.

At the City level, there are some subsidies available to unseal surfaces in citizen's gardens or courtyards, to improve the ground permeability especially within urban blocks. There are also subsidies available to create water retention zones and ditches that would also permit better water management and infiltration. There is also a platform available that supports citizens in greening their façades, their sidewalks, or their roofs, and for adopting public trees.

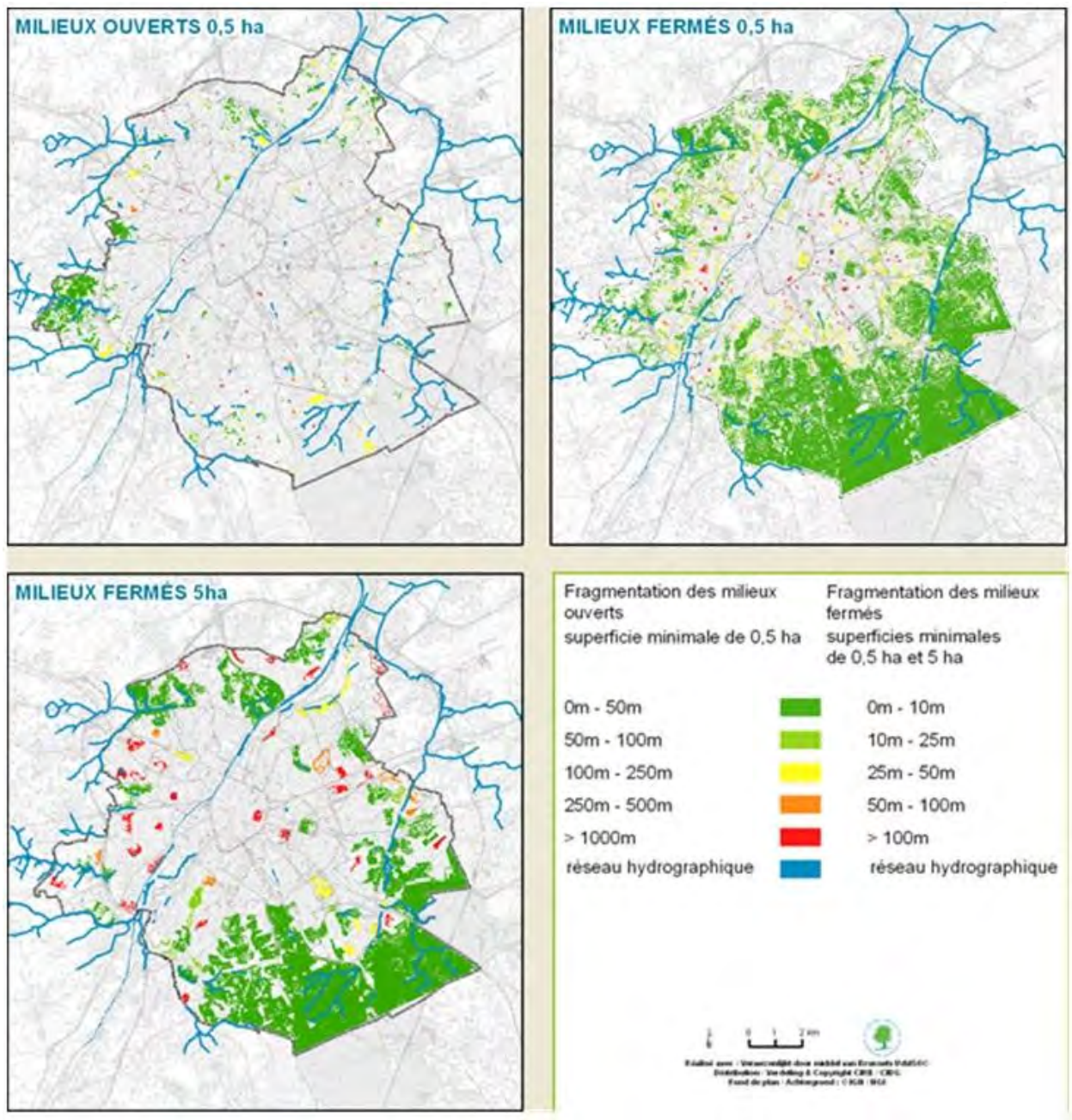


Figure 3. 45. Fragmentation of open spaces in the BCR

The map below was produced by Van de Voorde et al. 2010, based on satellite imagery, and “is based on the smallest distance between a patch of vegetation and its nearest neighbour. Only patches of at least 0.5 ha of open habitat or at least 0.5 or 5 ha of closed habitat were considered in the analysis. The centre and the periphery differ not only in the degree of greening but also in the spatial connectivity of their green spaces. The latter is less in the more central areas where most green spaces correspond to inner islands of gardens in the heart of housing blocks.” ([Bruxelles Environnement, 2014](#)). This map is one of the bases for the development of the Brussels Ecological Network.

The [Nature Map](#) of the City of Brussels shows that all the green spaces within NOH (and there are many !) are under municipal (and not regional) management. It also gives a list of indigenous

species, as well as technical details linked to growth rates, final estimated heights, etc. In addition to this nature map, the map below summarises green networks and “meshing” within the neighbourhood.

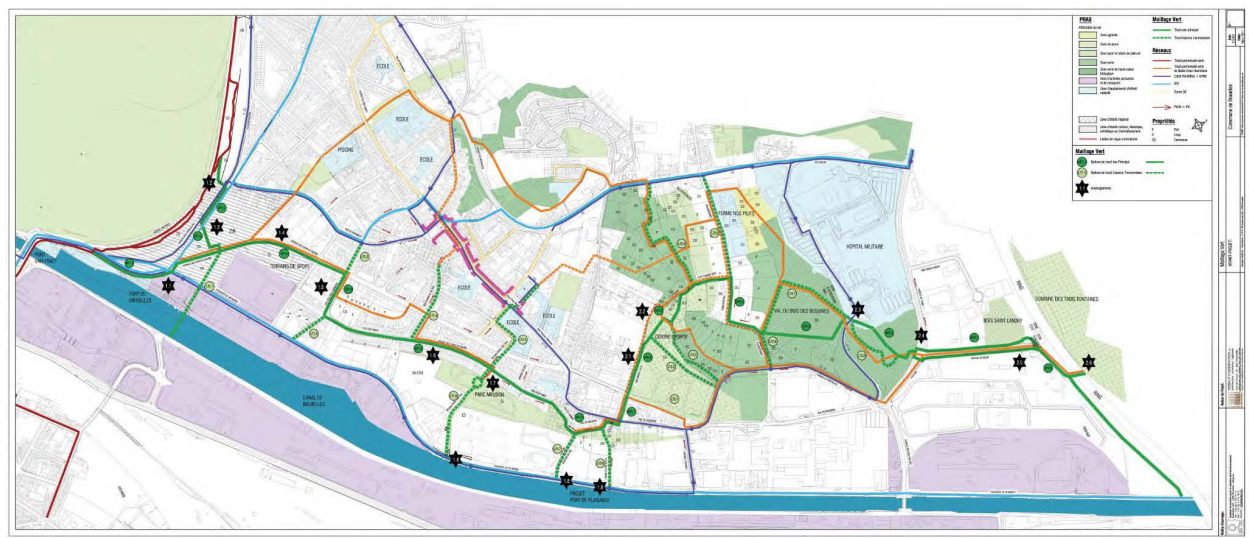


Figure 3. 46. Map indicating the green network in NOH

Bird focus

A note⁵ written by a local ecologist (Steyn van Assche) regroups observations over many years of bird species present in the NOH territory, notably many species of house, garden and kitchen birds that can be observed everywhere and especially around the Nos Pilifs farm.

The **Urban Forest** (*Bois des Béguines*, aulnay (marshes), and surrounding fields) houses some specific species, such as a variety of woodpecker species, warbler species, and finches. This mixed-profile space with soft transitions between zones is particularly welcoming to birds, as they can nest in the wooded areas and fly off to the fields in search of food. The settlement of the bullfinch could act as a target species for the design of certain green zones, focusing on soft transitions including hawthorn, sloethorn, brambles, roses, etc., or on strips of fallow and/or strips of lucerne around fields, and including better crop rotation to improve these ecosystems.

The **Aulnay** houses the siskin, and on the ponds, moorhens can often be seen. Some birds of prey can also be spotted in the area: sparrow hawks and buzzards around the Urban Forest, the kestrel around the canal and military hospital, and the occasional fly-over of a peregrine falcon or tree falcon. The presence of a red kite could be enabled (quite surprisingly) by the proximity of the ring road, according to English research. No owls have been heard or spotted in NOH, but tawny owls can be found at the Drie Fonteinen park (Vilvoorde) or the Chinese Pavilion (Laeken).

The **canal zone**, with its specific ruggedness, has some specific associated species of birds, including the iconic stork. The banks of the river **Senne** (on the other side of the canal) seem to be

⁵ This note includes a series of concrete action points that may be followed in order to promote and preserve biodiversity, especially focusing on bird species, that will not be drawn up here but remain an essential consideration for further project development.

suitable for nesting of a number of species (kingfisher, little grebe), and many migratory birds have also been spotted there (e.g. common sandpiper).

3.3.1.5. Local Masterplans

There are a number of legal and administrative tools that operate in the study area and area of intervention. On the regional level, the **PRAS** (*Plan Régional d'Affectation du Sol*) identifies the broad lines of land use. The PRAS can then be specified on a municipal level via the PPAS (*Plan Particulier d'Affectation du Sol*), which may modulate over time but remains constrained by the PRAS. Within these land use restrictions, certain Regional intervention areas are identified (*Zones d'Intérêt Régional* (ZIR) and *Zones de Revitalisation Urbaine* (ZRU)). These provide the context for two tools that are currently being mobilised within NOH: the **Contrat de Quartier Durable Versailles** and the **ZIR4** (*Zone Van Praet*) Masterplan.

The **PRDD** (Regional Sustainable Development Plan), the regional strategic plan, is the reference document in terms of land use planning in the BCR. It aims at reinforcing the connectivity of green zones, amongst which is the so-called *coulée verte* (old highway tracing) that goes through Versailles and downhill towards the canal. Many documents have been published at regional level over the past decade that look at this zone as a potential intervention area for increasing the “green lungs” and “soft” mobilities of the agglomeration. The municipal specification of this plan, the **PCDD** (mentioned in 3.1), will also be significant in establishing coherent lines of action for this zone. Both are subjected to the **PRAS** and **PPAS** (land use plans).

In the past, the **Housing Plans** of the City of Brussels (1000 Housing Plan of 2007 and the 850 Housing plan of the CPAS and *Régie Foncière*) allowed for the creation of a number of new neighbourhoods, including in the NOH zone (“Bruyn Nord”, “Bruyn Est”), which have impacted the neighbourhood dynamics and thus everyday life in Versailles, Val Maria and Craetbos.

The **CQD Versailles** could potentially act as a follow-up to these previous housing plans and impact the integration of these various social housing zones in NOH. Its key objective is to make Versailles into a verdant neighbourhood, based on the “inhabited parc” concept; a social housing complex that is sustainable, resilient, and connected to the rest of the territory of the City. It will imply a complete overhaul of the Versailles neighbourhood, with a physical/material dimension (impacting housing (old/new), infrastructure and service development, etc.) and a socioeconomic dimension (development of new entrepreneurship opportunities, calls for subsidies for citizen-led projects, etc.). The essence of the CQD is to be participatory, and to involve the residents of the intervention area from the very start through a variety of tools (citizen’s assemblies, general assemblies, consultation meetings, and so on).

The **ZIR4 (or Zone Van Praet)**, is a regional intervention zone, identified as zones of attention requiring an overarching reflection on how to structure (or restructure) the space. The new masterplan for the ZIR4 was presented by the City of Brussels to citizens of NOH in June 2021. It will include the construction of a new secondary school (tandem to the recently built primary school “*A la croisée des chemins*”), restructuring of the wetland zone behind the primary school in order to

preserve its ecosystemic characteristics, the construction of new housing, and reworking of some of the public spaces (including Rue de l'Ancre). It will contain 6,5ha of green space.

NB: *as the culmination point of the currently envisaged Healthy Corridor, and the linking point to the Van Praet bridge, it will be essential to take this zone into account in the next phases of URBiNAT.*

OPEN Brussels is a study that has the objective of developing an ambitious and common vision for a sustainable and regionally coherent network of open spaces in and around Brussels. It aims at the realisation of robust corridors between the city and the periphery for, among others, biodiversity, water, freshness, local agriculture, and active mobility. This study takes as one of its case studies the north-west region of the capital, where Versailles, Val Maria and Craetbos are located, and considers the potential for agricultural and open-space continuities across the regional border, particularly towards the Drie Fonteynen domain and the Hoogveld/Tangebeek. As mentioned in the evaluation of the biodiversity corridors and porosity in 3.1.5, this is considered to be one of the main corridors linking the BCR to its hinterland, and this study in fact points to its potential for nature across the built fabric. It also points to the potential of large-scale infrastructure such as the A12 axis, on the other side of the neighbourhood towards the royal domain. Taking into account the analysis and propositions made in this study will be a point of attention for the development of the Healthy Corridor concept in Brussels.

3.3.1.6. Urban/landscape design Projects

In parallel to the CQD Versailles, which will also have a landscape design impact, the **Climate Plan of the Logement Bruxellois**, the entity which manages the Versailles social housing neighbourhood, will invest 40 million euros to renovate and isolate the outside envelopes of the buildings of the complex, as well as renovating the ventilation system and creating new private gardens for apartments on the ground floor. Three different consultancy firms have been designated to design these renovation plans (designation in august 2020), and the construction work proper is meant to take place from April 2023 to April 2025.

The **tram extension** through NOH will imply a renovation of the streets and squares along its new route, including the Zavelput square (an important nodal point for a variety of users). Public consultation is taking place for all main renovations; inhabitants will get a say in the “uplift” of their streets, and have a chance to review some of the basic functionality of specific public spaces.

The **Canal Plan** mentioned earlier will also have an impact on the development of industry in NOH bordering this canal zone. Alongside this, the **Plan BUDA**, for the economic zone with the same name, will also generate a masterplan with potential landscape design implications. These zones are bound to change quite a lot soon, from monofunctional industrial zones to integrated urban spaces. The **parc balcon** plan in the vicinity of the Brussels Royal Yacht Club also intends to break down barriers between functions, and to increase the accessibility of the waterfront.

3.3.2. Social description

There are pockets of poverty linked to very site-specific urban developments, due to the filling in of agricultural fields with social housing developments of a quite homogeneous nature. This results in socio spatial ruptures and tensions, and an increased need for urban coherence and social cohesion and for a holistic approach to urban planning.

Though the overall socioeconomic indicators seem quite positive, and are even sometimes above average for the region, when you look at the fine grain analysis (at the level of the statistical sectors) then it reveals what is already intuitively felt on the ground and emerges from discussion with inhabitants: it is far from being a homogeneous place and population.

3.3.2.1. Demographic

The average age is quite young: 38,38 in Heembeek, and 39,35 in Mutsaard (Monitoring des quartiers, 2019). In Heembeek, there are 91,37 men for 100 women ; Mutsaard counts 88,78 men for 100 women (Monitoring des quartier, 2019). The average area per inhabitant in 2001 for Heembeek was 32.42 m², and for Mutsaard 38.86 m².

Further demographic/population data can be extracted from the Monitoring de Quartier database, including data on:

- Evolution of the population
- Age structure
- Age structure (by sex and age group)
- Nationalities
- Households
- Residential mobility

3.3.2.2. Safety and health

Safety: a polarised neighbourhood

At a neighbourhood level, a number of actors are present relating to the issue of safety: the **police** (police station located in the sub-neighbourhood Versailles), the **gardiens de la paix** (peace agents; replace in Brussels the “proximity police” but do not have as much authoritative power), the **Maison de Jeunes de NOH** (specifically for issues relating to youth), and the para-municipal agency **BRAVVO** (*médiation sociale*). These actors meet on a regular basis in order to exchange knowledge and coordinate their action plans to deal with issues that emerge. They tackle both correctional and preventative approaches to neighbourhood security.

In general, NOH is considered to be a relatively quiet neighbourhood within the City of Brussels. However, a number of issues emerge in the BRAVVO report of January 2020, linked generally to the Versailles sub-neighbourhood:

- School dropouts, linked in part to discrepancy between student profiles and school “expectations”
- Difficulty to work with youth and include them in activities; high demand from the youth to have a (autonomous) space
- Some cases of profiles with mental health issues present in public space
- Conflict between youth and elderly, between youth and families
- Polarisation due to arrival of new populations in the neighbourhood, with more mixed profiles (origins): fear of old inhabitants in the face of the newer ones, manifest especially in the difference between Versailles/Val Maria and the rest of the neighbourhood (NOH)
- Lack of intercultural and intergenerational spaces; difficulty to engender social mixing
- Misunderstandings with the police
- Issues with squatting of groups in the basements and upper floors of the buildings in Versailles
- Recurring incidents of illegal waste dumping
- Insecurity linked to excessive speed on Versailles Avenue, especially linked to the pedestrian crossings between the playground and sports fields, and at the level of the entrance to Val Maria
- Recurring reports of drug dealing (had diminished since 2017, but is now going up again) ; capsules of protoxyde azote found regularly on the ground
- Various reports of recurring acts of petty delinquency and assaults
- History of arson (bins, cars, the police station in 2017, the Maison de Jeunes); particularly pronounced during New Year’s Eve (not past 2-3 years) and in “retaliation” to police repression

Within NOH, a number of priority zones are identified (see map below), including Versailles and Val Maria. In the ISO report of January 2020, Versailles is by far the one that garners the most commentary (and a 3-star priority out of 3), whereas Val Maria is only a 1-star zone.



Figure 3. 47. Attention areas for the “peace guardians”, the police, and BRAVVO

In the same BRAVVO report of January 2020, a site-specific analysis was drawn:

Versailles:

- Site very different from the rest of the district (27 buildings/796 households), high precarity, strong withdrawal, degraded buildings. Before the arrival of the police station, the neighbourhood was marked by numerous insecure incidents caused by young people (adults) (arson, vandalism (cellars), theft), which had a strong impact on the neighbourhood. Difficulties noted with a good twenty young people living on the site (18/30 years old), who are unstructured, have no life plans ("bored in the evening") and are too old to attend the youth centre. Recurrent demand for a place to meet (self-managed non-profit type).
- Concentration of social resources on the site.
- Lull since the arrival of the police station on site, the arrest of several protagonists...
- See footnote for points put forward about conviviality on the different floors...

The footnote in question:

- “On the basis of feedback from residents during conviviality meetings in the halls, the following points are worth noting:
- The positive points (in line with the information from the GDPs): the greenery, the festive and convivial events in the neighbourhood, the rounds of the GDPs, the cleanliness, the infrastructures, good living together and solidarity between the inhabitants and between young people, the fact that there are fewer fires, mobility.
- Negative points: gangs of young people who reinforce insecurity, the absence of fathers and the lack of parental authority (many single-parent families), the fear of reprisals, the lack of solidarity between residents, harassment, many fights, illegal dumping on the LB site,

lighting at Laskouter (pruning the trees), the lack of young/adult links, deteriorating cleanliness, the problem of gender/girls being harassed, dropping out of school, the lack of parking space

- What stands out specifically in Brussels Housing: slowness of services, lifts, demand for more collective projects, containers to be replaced, lack of procedure for welcoming new residents, insulation of housing. Work has been done in the common areas.
- Requests: more awareness of cleanliness, more activities for young people, more dustbins, GDPN, a meeting with LB to discuss and develop projects, more activities for all age groups, EPN requested by the women, making troublemakers responsible (do not spread the costs over the tenants), more activities at the MJ, more intergenerational mutual aid, budget for activities
- General assessment: people refuse to talk, the atmosphere is very different from one building to another, people don't take part in the life of the neighbourhood (and don't care), very strong feeling from young people”

Beyond this report, it is important to note the gendered dynamics in use of space, with a predominance of young men in public space that has an exclusionary effect for girls, and issues of social control and gendered harassment. Women and girls do not feel particularly at home in these spaces and avoid many of the informal walking paths (such as the Chemin du pendu linking to Val Maria) at night. This is a point that emerged very strongly in Stage 2 and made the women-only walkthrough of the neighbourhood essential.

Val Maria:

A social housing site with 235 households that is significantly less problematic than Versailles. Some incidents are reported, relating mostly to intergenerational and neighbour conflicts. There are some groupings of youth (small, 5-10 youths) in the late afternoons to evenings (up until 3am), which do generate a feeling of insecurity for some neighbours. There is some drug dealing taking place on the site (source of conflict with Versailles/Bruyn, for territory), which is also a source of insecurity for some neighbours, particularly at night.

Health

The ratio of **general practitioners** per 1000 inhabitants in Heembeek is one of the lowest in the region (0.83 doctors per 1000 inhabitants in 2017), highly contrasted with Mutsaard which has one of the highest rates (1.71) (Monitoring des quartiers, 2017). However, it is very likely that inhabitants of Heembeek are equally serviced by the doctors of Mutsaard, considering the spatial interactions between these two statistical neighbourhoods (boundary is quite artificial).

There are also a number of **Maisons médicales** (health centres) that deal with individual and community (mental) health. The **military hospital** is located within the perimeter of NOH, and is well-known for its specialised care for burn patients; however, it deals with a wider perimeter of patients than the neighbourhood.

The **absence of a family planning centre** in the NOH perimeter is quite significant for women, the closest being on the other side of the royal domain in Laeken (Boulevard Emile Bockstael), implying the necessity to take the bus to access this service.

3.3.2.3. Participation

Existing participatory processes and initiatives (municipality)

Citizen participation is implemented at different levels in the City: from information to co-production and consultation. The participation department is a central point for informing and guiding inhabitants of the City regarding different participatory processes and municipal projects (e.g. the ZIR4 and tram projects, both discussed in 4.1). The online interactive platform [FaireBXL](#)Samen aims to establish new relationships between the City and its residents and enable citizens to provide opinions, submit projects and vote for ideas.

In NOH, a number of citizen fora have been organised by the municipality in the past. It was also the pilot neighbourhood in 2020-2021 for the creation of a Neighbourhood Council (*Conseil de quartier*): a randomly drawn committee meant to operate as a representative unit for representing inhabitants' interests and concerns. This pilot project was coupled with the first participatory budget to be conducted in Brussels: 1 million euros to be spent on public investments (specifically infrastructure) in the neighbourhood, divided according to neighbourhood-set and aldermen-validated priorities, with an open voting period.

Local culture of participation

There are over 50 organisations present and active on the territory of NOH, including associations (dealing with youth, health, education), sports clubs, religious associations, artist collectives, neighbourhood centres, and so on. These organisations are regrouped in the *Coordination Sociale*, an umbrella organisation that brings these organisations together in quadrimestral meetings, organises specific thematic working groups (youth, culture, employment, diagnostic), and can act as a representative of the associative network when appealing to public institutions, as is the case when the *Livre Blanc* is presented to the new elected representatives at the start of their term.

Local associations also use participatory workshops for some projects. This was recently the case for a street art fresco (pictured here) created with the inhabitants on Place Saint Nicolas, as part of a “positive identities” project that aimed to improve self-perceptions within the neighbourhood.



Figure 3. 48. Fresco on a wall adjacent to the Place Saint Nicolas (and the cultural centre of the City of Brussels), created by an artist on the basis of participatory workshops with citizens

Although many of these organisations focus on social cohesion and youth (indicating the awareness of a need for social justice actions), there is a lack of attention to questions of **gender**, and currently no feminist organisations in this neighbourhood. However, a branch of FEMMA will soon be opened in the Versailles neighbourhood, which may influence local gender dynamics (though its effective implementation as a Dutch-speaking association in a primarily francophone neighbourhood remains to be seen). It must be noted, though, that associations such as Projets Versailles - though not explicitly feminist - do create specific moments of gathering between women (following the feminist practice of “*non-mixité choisie*”), for conviviality, sharing of life experiences and good practices for everyday life (including child-rearing) : notably breakfasts, movie clubs with discussants, and exercise groups.

Uses of public spaces by associations, schools, and other actors in the intervention area

Every year, the inhabitants organise a small neighbourhood festival. The Christmas market in the City centre “travels” for a weekend to the neighbourhood. In November 2019, various associations organised an “artistic walk” in which all the partner associations were open and could be visited. In general, children and youth occupy a lot of public space. A “bicycle workshop” is also organised in one of the associations by young people from the neighbourhood who have been trained by the association. A very active women’s group organizes a “homework school” (*EddNOH*) and workshops for local women. Boxing classes for young people take place in a community space (*Salle Agora*). Film evenings are organised by and for different groups of residents in a nearby cultural centre “La Maison de la création” on certain evenings of the week. A neighbourhood compost was recently (in

2021) set up by the neighbourhood committee (*Projets Versailles*), the master-composters, and some neighbourhood youth.

Social housing organisations enabling the “social”

Comensia is the housing society in charge of the “Clos du Craetbos” and “Val Maria”. It is a cooperative society. They have a community centre on site one afternoon a week and meetings with tenants twice a year where tenants can share collective problems. Several groups are active: vegetable garden (and the new project of chicken coop winner of the call for projects sustainable initiatives 2019), Nordine and the youth, but there are also gym classes organized in Mariensteen Room, the homework school also has activities there, as does Versailles Beauty and the breakfast group. Comensia is starting a zero-waste group project, with which they hope to reach about 30 families.

3.3.2.4. Public services

For a description of mobility services, please refer to 4.1.3. For public services please refer to 4.3.5.

What is essential to note here is that there is a **dire lack of community gathering spaces**, multifunctional rooms: these have repeatedly been requested to be decentralised, and more easily accessible to any inhabitant wanting to organise common activities (sports, gatherings, meetings, breakfasts...), but also to associations needing meeting and activity spaces.

3.3.3. Economic description

3.3.3.1. Income and poverty

Code	Territoire	Taux d'activité (%)	Stabilité de l'emploi (%)	Part des salariés dans la population active occupée (%)	Taux d'emploi (Part de la population active occupée dans la population en âge de travailler) (%)	Ecart absolu entre les taux d'activité masculin et féminin
		2012	2001	2012	2012	2012
	Moyenne des territoires affichés	70,99	88,90	84,59	57,90	/
	Total RBC	-	-	-	-	-
	Moyenne régionale	65,10	85,69	80,86	49,24	12,13
76	Mutsaard	73,70	89,16	82,66	60,47	10,06
77	Heembeek	68,31	88,56	86,68	55,37	12,37
	* ND: non disponible					
	* VS: valeur soumise au seuil	< 100 actifs	< 100 salariés	< 100 actifs	< 100 actifs	< 100 actifs

Table 3. 4. Socioeconomic indicators for the statistical sectors Heembeek and Mutsaard

Code	Territoire	Part des demandeurs d'emploi dans la population de 18-64 ans (%)	Taux de chômage (%)	Taux de chômage des jeunes (%)	Part des jeunes dans les demandeurs d'emploi (%)	Part des demandeurs d'emploi de longue durée dans les demandeurs d'emploi (%)
		2019	2018	2012	2019	2019
	Moyenne des territoires affichés	9,56	14,86	34,90	9,84	65,05
	Total RBC	-	-	-	-	-
	Moyenne régionale	11,38	18,65	38,09	9,63	63,02
76	Mutsaard	9,57	14,44	32,08	7,87	65,31
77	Heembeek	9,56	15,29	37,31	11,71	64,80
	* ND: non disponible					
	* VS: valeur soumise au seuil	< 100 habitants de 18-64 ans	< 100 actifs	< 100 jeunes actifs	< 50 chômeurs	< 50 chômeurs

Table 3. 5. Unemployment indicators for the statistical sectors Heembeek and Mutsaard

Code	Territoire	Revenu imposable moyen par déclaration (classes de revenus) (€)	Revenu imposable moyen par habitant (classes de revenus) (€)	Revenu imposable médian des déclarations (€)	Revenu imposable moyen par déclaration (€)	Revenu imposable moyen par habitant (€)
		2015	2015	2018	2015	2015
Moyenne des territoires affichés		/	/	/	/	/
Total RBC		-	-	-	-	-
Moyenne régionale		27449	13831	19723	27449	13831
76	Mutsaard	4	4	23436	31037	16943
77	Heembeek	3	3	20840	VS	VS
* ND: non disponible						
* VS: valeur soumise au seuil		Non disponible	Non disponible	Non disponible	Non disponible	Non disponible

Table 3. 6. Income indicators for the statistical sectors Heembeek and Mutsaard

3.3.3.2. Employment

The Versailles statistical sector demonstrates the socioeconomic precarity of its inhabitants: a large majority are unemployed, and this is particularly flagrant with the youth. As it is an exclusively social housing neighbourhood, there is little mixity in the socioeconomic profiles. Val Maria and Craetbos area a bit more nuanced, resulting from a more mixed housing structure, and different profiles of social housing residents, with an older population of residents who have spent most of their adult lives.

Within the NOH context, these two areas are emblematic of an economic rupture that emerged from the rapid construction of social housing complexes, placed somewhat haphazardly within a “village”, more socioeconomically stable and middle-class context.

An [analysis published in 2020](#) evaluating the impact of the new tram line project (discussed in 4.1) also discussed the socioeconomic context within which this project embeds itself. It notes that there are more or less 7,300 jobs in the NOH area, with a high density in the north of the area (around the Solvay complex and Buda industrial zone), a medium density along the canal (industrial zone), and very few jobs in the Mutsaard district (predominantly residential). The employment rate is slightly higher in this area than in the rest of the BCR. The unemployment rate in 2015 was higher in Heembeek (18.06%) than in Mutsaard (15.23%).

There are 3 companies with +/-1,000 employees, 4 with 200-400 employees, and approximately 20 with 50-150 employees. These companies employ predominantly technical staff, working in shifts or staggered hours (with an impact on mobility practices within the area).

What is interesting to note is that a mere 35% of employees in NOH come from the BCR; of the 57.5% that come from outside the BCR, only 6.9% come from neighbouring municipalities in the Flemish Brabant. From within the BCR, 13.4% come from the west, and 9.6% come from the east of the BCR, indicating an 'exchange' of sorts between workers (as these are the directions inhabitants of NOH go more generally). This is possibly an indication of mobility convenience, rather than merely the job market: the connections are most prominent to the north-west of the royal domain towards Laeken (and thus Jette, Molenbeek, etc.) and to the east via the Pont Van Praet and Boulevard Lambertmont (towards Schaerbeek, Evere, etc.).

Further relevant statistical data can be found on the website of [Monitoring des Quartiers](#). The IBSA database also contains information at municipal level about [beneficiaries of financial support](#) (CPAS) and [other forms of social support](#). Additionally, a study conducted by the ULB outlines lines of action for dealing with issues of access to the labour market.

3.3.3.3. Innovation

Please refer to 3.3.3, as the neighbourhood context does not differ from the general Regional and municipal characterisation.

3.3.3.4. Activity sectors

NOH is a primarily residential neighbourhood, with two commercial zones (De Wand with +/- 200 shops, and François Vekemans with +/- 100 shops), an industrial area alongside the canal, and some remnants of its agricultural history, particularly on its periphery zone, bordering the Flemish region and wedged in by the ring road. The two urban farms - Nos Pilifs and the *Ferme urbaine* of the Début des Haricots asbl - are in proximity with one another. In 2006, Mutsaard counted 4.21 shops per 1000 inhabitants, and Heembeek counted 3.56/1000.

Historically, many inhabitants of NOH were employed locally, for example in the industrial complexes, the Military Hospital, or at the Solvay institute. Nowadays, the local work offer is too low for the growing population, and so many employed dwellers need to commute to other parts of Brussels or even beyond the BCR in order to make a living, implying long commutes and high car use. Conversely, many of the employees of the associative network come from outside of the neighbourhood, which is often narrated as a desire to keep personal, and work lives separate.

There is very little **tourism** in NOH, but a potential lies there for internal BCR tourism to visit the old *béguinage* adjacent to the Meudon Parc, amongst other architectural elements remaining from the time when the village housed a number of castles. The City of Brussels has begun a process to extend its Comic Strip walk ([Parcours BD](#)) and Street art walk ([Parcours Street Art](#)) towards these peripheral neighbourhoods. The regional Green Walk ([Promenade Verte](#)) borders the

neighbourhood, and a number of international cycling routes and *grandes randonnées* (GR : european walking routes) traverse the area.

In **Versailles**, there is only one small grocer, on the corner of Beyseghem street and Chateau Beyard : he provides a wide variety of exotic products reflecting his diverse audience, but the neighbours whisper that he is wildly overpriced (due to the lack of competition). Apart from him, a *friterie* on the corner of Roi Albert and Beyseghem is the only other source of food within the radius of a quick walk (for that lunch's bread for example). **Val Maria** and **Craetbos** have no corner store, but Zavelput (grocers, snack, take-out) is only a 5-minute walk from the Clos du Craetbos, Nos Pilifs (with an organic store) is a 15 minute walk from Val Maria, and Peter Benoit square (*friterie*, organic store, start of the Vekemans street) is a 10 minute walk.

The **cultural sector** in NOH is small but vibrant. There are two cultural centres, one francophone and one neerlandophone (Maison de la Création and GC Nohva), a dutch and french library, an atelier (Atelier Ad Hoc) that offers working space to a dozen of artists, a theatre troupe that has a long history in the neighbourhood (Collectif 1984), a yearly artistic walk organised by the *Coordination Sociale* working group on culture, a yearly festival occupying public space (*Living en Ville*), and a budding group of young artists self-organising to generate opportunities for themselves (including many in Versailles, such as a young collective of youth engaged in audio-visual arts).

3.3.3.5. Facilities

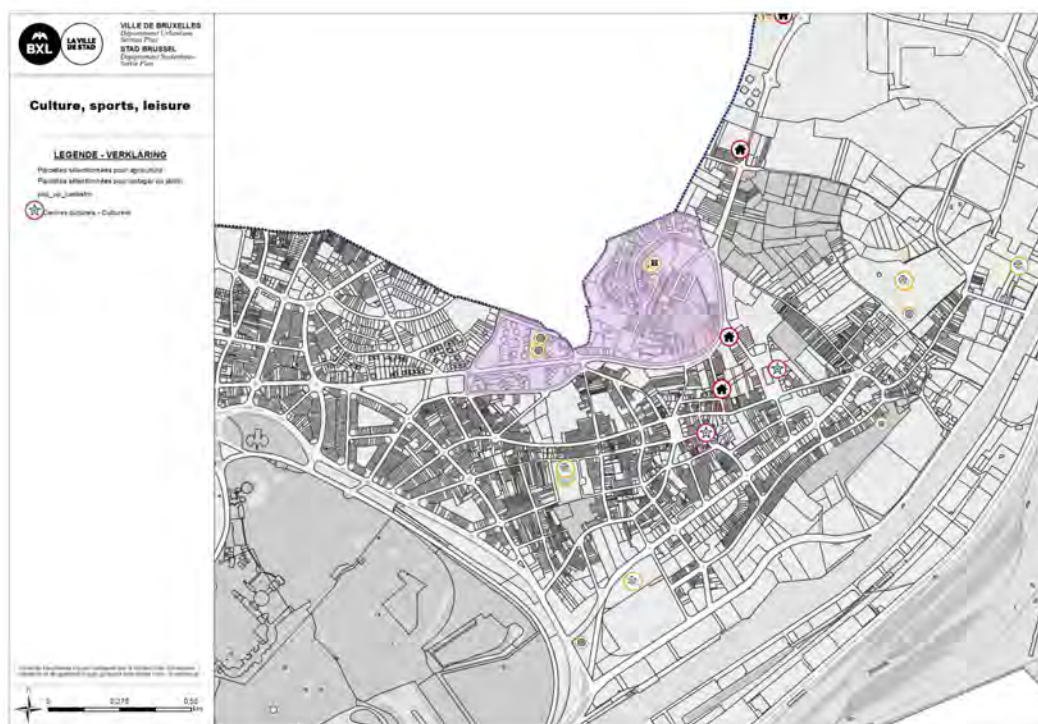


Figure 3. 49. Culture, sports, and leisure facilities in NOH

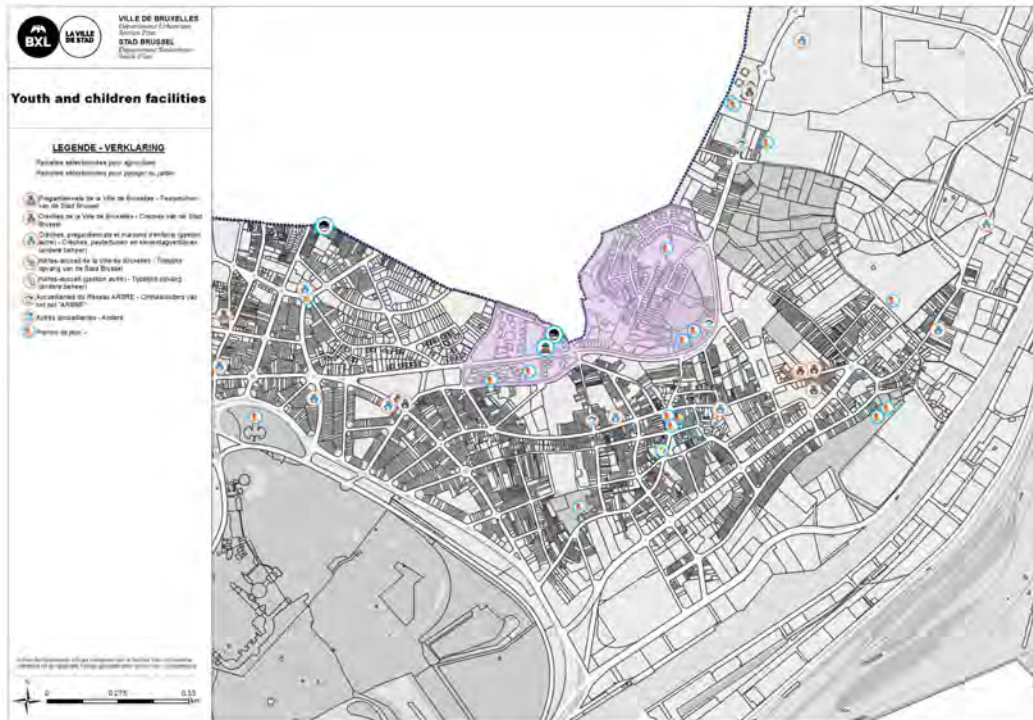


Figure 3. 50. Youth and children's facilities

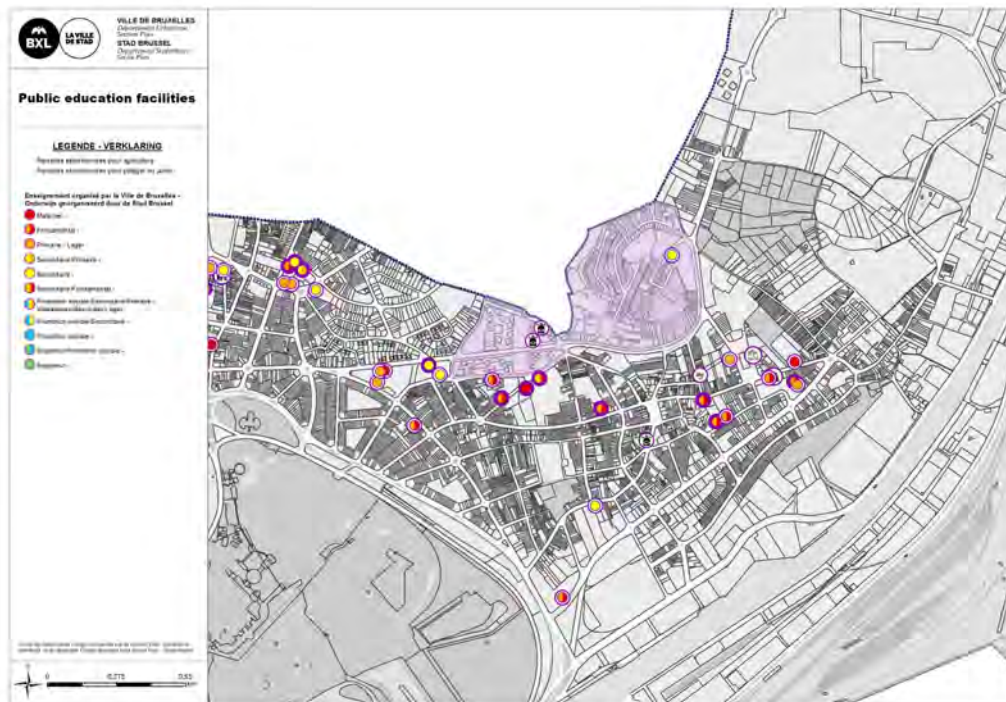


Figure 3. 51. Public education facilities

3.3.4 Conclusion / synthesis

The most imperative focus of the implementation of URBiNAT in Neder-Over-Heembeek will be aligning itself and finding the synergies with the variety of local plans and initiatives taking place currently in the neighbourhood: the CQD Versailles, the Plan Climat of the Logement Bruxellois, the

ZIR4 masterplan, Open Brussels, the Coordination Sociale diagnostic, social cohesion projects such as the Projet de Cohésion Sociale Coin des Cerises, etc.

Social and economic inequalities are quite marked in the City of Brussels, revealing spatial pockets of poverty linked to a variety of factors, one of which being the presence of social housing complexes that concentrate socioeconomic indicators in place, rendering visible a situation that would otherwise be diffuse. The neighbourhood Versailles is particularly marked by these poverty indicators and is thus identified within the most recent ZRU as a priority intervention zone and will in fact be the subject of a CQD starting in the summer of 2021.

The main themes emerging from this first analysis of the study and potential intervention areas is the importance of **socio-economic and socio-spatial fractures** that have resulted from a rapid urbanisation in the past years, which infilled old agricultural lands somewhat haphazardly. The necessity of preserving remaining green spaces in the face of densification pressures is also a focus point, particularly in light of the need to preserve “fresh zones” (to combat urban heat island effects), permeability of soils, and zones of biodiversity. There is some community equipment lacking, such as gathering spaces, sports equipment accessible to all, and basic services such as ATMs, post, and bank offices.

3.4. Stage 2 - Local diagnostic report: methodologies

3.4.1 The first stage of the Local Diagnostic

In Stage 1 of the Local Diagnostic, the Followers cities assembled and organized an exhaustive data set useful for the project URBiNAT. The Local Diagnostic designed by the Front runner cities is the model used by the Follower cities, so that they have implemented and performed their own Local Diagnostic using the experience of the project partners.

3.4.2 Design of the research plan for the second stage of the follower cities' local diagnostics

The second stage of the local diagnostic was an essential element for having a first contact with local stakeholders, and to begin to build a community of interest and integrate URBiNAT within the local context of the study and intervention area. Engaging inhabitants and stakeholders in activities guided by the common consortium protocols allowed for a particular sensitivity to place, and to take the time to be present in the field (essential for building networks and trust relations).

Thus, following the ethos of URBiNAT in engaging in a process of co-creation from start to finish, it was necessary to begin this engagement of building common understandings, visions, and dreams, beginning necessarily with co-diagnosing together. *(In french, this part of the process was more commonly referred to as the "analyse partagée du territoire" : a shared analysis of territory/place.)*

This section is dedicated to describing the set of participatory activities used to perform the co-diagnostic and feed the following phases of co-design and co-selection of NBS. All the activities were proposed and validated in the context of workshops/community meetings.

In the case of Brussels, it was necessary to adapt some of the protocols developed by the consortium in order to adapt to the local context, particularly considering the unfortunate timing of the Covid-19 epidemic, which upturned many of the possibilities for life-as-usual, including the URBiNAT project.

The design of the research process for the co-diagnostic attempted to align itself as closely as possible with the analytical framework developed by the consortium, namely:

1. Inclusive urban space
2. Co-creation process for active involvement
3. Culture at the heart of sustainable urban development / inclusive urban regeneration
4. Socio economy for revitalisation and strengthening the urban space
5. The wellbeing in the neighbourhood
6. Environment

This section will present the implementation of the 9 research protocols developed by the URBiNAT consortium in the context of the Brussels Living Lab, and present the results of these protocols, working towards an analytical synthesis that will guide Section 7 : Baseline for the development of the Healthy Corridor.

3.4.2.1. Walkthrough

In the context of the covid-19 pandemic, the walkthrough methodology was particularly relevant as a way to engage with the field and to meet actors that were otherwise difficult to engage with, as meeting in closed environments was for most of the diagnostic phase not allowed.

The walking modalities in Brussels were as follows:

- Gendered exploration of public space
- Individual explorations of place: *flâneuse* methodology
- Walking interviews with several actors: to get a grounded discussion of place, discovering new places
- Hitching up to other association's walks with inhabitants

RESULTS

1) In/security: Walks with women (3 moments, Spring 2021

Objectives

- To establish a collective map of points of attention, points of tension, spaces to rethink, propositions for improved security (or perception of security), in the context of feelings/experiences of in/security
- To use this analysis to feed into the local diagnostic report, and thus in time rethink these spaces in light (amongst others) of these inputs

1st walk: A dreary Sunday, starting from Versailles, walking up to Val Maria through the Chemin du Pendu

Living in a neighbourhood for a really long time does not necessarily mean knowing all of its “secret” or hidden places; if everyday life or activities do not bring you there (or work, as in my case), they may remain unknown forever. It is important that everyday activities are widespread, to know different places and extend the perimeter of everyday life (without this dispersal of activities becoming an impediment to participation. this was mentioned by a participant about boxing classes in the neighbourhood).

Many women excused themselves from participation due to family-related engagements: children at home, visitors/hosting family, ... This shows the gendered element of their key preoccupations: it is more important to attend to, or difficult to get out of, these care duties.

Conversations around this walk (not during), also helped elements to emerge: e.g. Annemie saying that two women who live in Val Maria go running together at night (around 7/8pm) and feel very safe (Annemie said this might also be in part because they wear headscarves and are together, not just because they are familiar with their neighbourhood).

2nd walk (in 2 parts): Sunny Thursdays in Spring, when the weather was just warming up, in partnership with Lieu de Liens (Coin des Cerises asbl)



Figure 3. 52. Map indicating the walking route during Part 1 of the “insecurity” walkthrough

1st stop: vacant lot between Donderberg and Roi Albert

The women generally had a positive impression of the presence of nature, evoking the health-giving benefits of being in nature (fresh air, greenery, seeing trees, playful space for children), but also evoked the issues of a nature that is too “wild”: inaccessible (overgrown, muddy), potentially dangerous (brambles, lack of lines of sight, darkness), and the fear of being alone here.

2nd stop: Solarium park

The women take a stop on the outdoor exercise facilities, find a lot of joy in interacting with these elements. They come to this park often with their children, with groups for activities (e.g., an Easter-egg hunt with the boxing-school children). They feel it could contain more play elements, but they appreciate the presence of different zones (playground, green lawn, dog-zone). The presence of dogs is a point of discussion, bringing up fears for children, questions of cleanliness (dog poo on the lawn). They feel good here, like to see their children happy here. It could use more bins and benches. There is a good visibility, which is reassuring.



Figure 3.s 53 and 54. Pictures taken during Part 1 of the “insecurity” walkthrough, showing the women exercising and walking

3rd stop: Rue de l’Ancre

A quick stop, as time was flying by. No comments, except for a quick note on the part of the facilitator of the future projects linked to the ZIR4 masterplan. Going back up to Versailles via Château Beyaerd street, we note that we don’t see a castle (what is the history of the street name?).

Overall comments

The women did not know the vacant lot, had not done this walk before, even though it is adjacent to Versailles. They reflect that it was a pleasant walk, they liked to be together, outside on a sunny day, to have a thematic walk (the Thursday morning walks were not always thematic), and said it was “good for them”. Felt they had learned something about their neighbourhood, enjoyed this aspect, it awoke their curiosity about the history of the place.

2nd meeting: to do the remainder of the walk

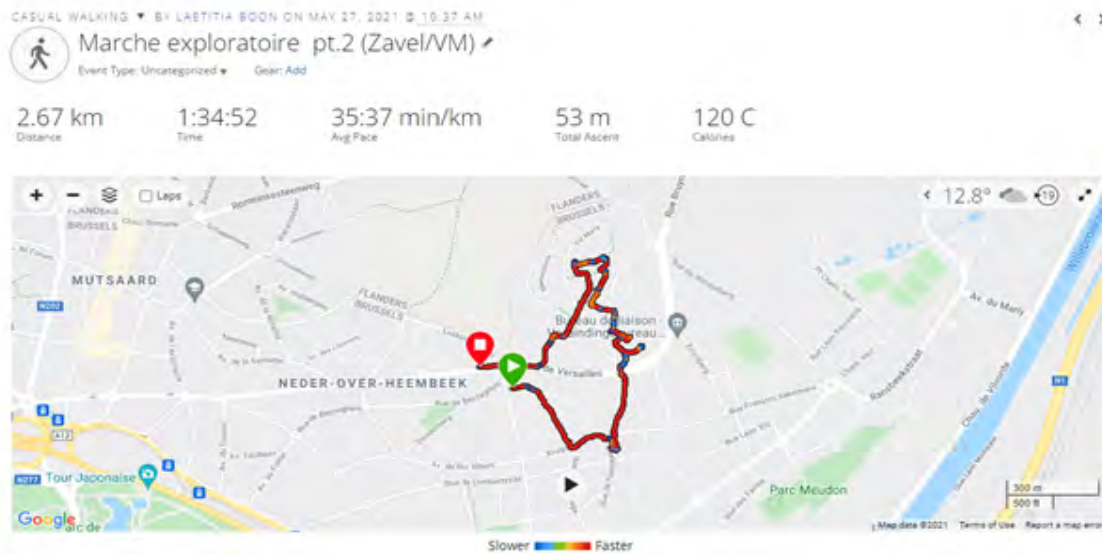


Figure 3. 55. Map indicating the walking route during Part 2 of the “insecurity” walkthrough

1st stop: Zavelput

The Zavelput is a symbolic place, central in the neighbourhood, where people from all corners of NOH come down (to take the bus, to pick up their kids from school). It is a place of flow, but there is also a playground that it used a lot just at the end of the school day (around 15:30/16:00). There aren't enough benches to sit when the weather is nice, and there could be some more play equipment. The Park is not a place to spend the day, but it comes in handy in between activities. The playground is not secure enough, children can “escape”, and there are many cars and buses going fast (there is a lot of noise from cars in the recording). Mothers don't leave their children here to play unattended. A safer park would allow them to feel less stressed.

The moments of insecurity linked to this space are more so in the evening as soon as the sun goes down. There is a fear of meeting drug addicts, though apparently there are more so only some small-time drug dealers who stay discrete. There are not many gangs, according to some, or at least not compared to other neighbourhoods of Brussels. The square benefits from a lot of eyes on the street, it is in full view of many inhabitants, which makes it feel safer. It is also well-lit at night.

As is typical of this walk, this stop focuses a lot more on the playground than any of the other elements that make up the square (though we also briefly talk about the new ice-cream shop), showing the focus of these women on public space in light of their role as mothers.

2nd stop: Craetbos park and playground

Before arriving at the playground, we noticed a drinking water fountain, the presence of currant bushes, and the new buildings behind the Craetbos.

The open green space: There is much curiosity about the openness of this space, which begs the question of whether there may be future building plans. They feel this would be a shame, as it is a large continuous green space, but feel convinced that this is the only reason this space would be left to sit as it has.

Playground: Not very attractive, isolated, not enough investment, something feels wrong about it, and it is not accessible by bus, you can't park your car, and so it seems to be only a park for the direct neighbourhood. However, it seems like a nice park to spend the afternoon, not just a passing moment between errands, but it is not set up to spend that much time there. The park feels like a draft, unfinished. There are some suggestions to create more visual continuity to connect the two parts of the playground.

Versailles Avenue: There is no pedestrian crossing on Versailles Avenue, this avenue is a source of anxiety, as cars go much too fast, and there have been many official requests to make this street safer. Speed meters have been noticed in the past, but never stay very long, and definitely not enough for people to make a habit out of slowing down. There is some fear linked to the potential for a lost ball from the playground to end up on the street, and a suggestion to plant more trees or bushes on the border to reduce this risk.

Suggestions/dreams: It would be interesting to have mulberry trees, apple trees, cherry trees, walnut/hazelnut, chestnut, medlars.. they grow very easily (in the south of France), they sell them in the small corner store in Versailles (nostalgia for the south, the women remember what it is when they say the word in Arabic); aim of bringing fruit within reach of the inhabitants. Suggestion to have a map at the entrance showing what you can do there, maybe also a football field (informal, though there are many football fields already in NOH, it may be more interesting to have a diversity of spaces).



Figure 3. 56. Picture showing the women participating in Part of the “insecurity” walkthrough, while on the Chemin du Pendu

3rd stop : Val Maria playground

Most of the women discovered the park in the hollow of Val Maria for the first time; they found it calm and were surprised that they had never seen it after so many years in the neighbourhood. They would like to spend a few hours there with their children.

Closing moment:

Micro-time to take stock of what we have seen, but the energies are quickly dispersed. They thanked us for the walk, and we talked about doing a walk on the history of the neighbourhood with Ghislain (a very old inhabitant of Val Maria). The women liked the idea of thematic walks.

2) Walk with Steyn van Assche: on the quest for ancient waterways

We meet at Zavelput, and walk towards the Coin des Cerises round-a-bout, where we see if we can visit the Corbiau property to see the Grote Knijfbeek and Kleine Knijfbeek, which meet a little before the Den Bels farm. These ancient waterways could be the historical reason for the boundary between municipalities/regions.

On our way to the fields, he points out the Allée des Moutons, which his children use to go to De Wand and participate in youth groups. It is in a pitiful state, barely possible to cycle (unless you want to mountain-bike).

The forest on the Corbiau property has many species indicating that it is an ancient forest, linked to the presence of springs. We walk through the Flemish countryside to get a view of the forest from the other side, Steyn points out the Chaussée Romaine (old roman road). The *sleedorn page* (butterfly species) that can be seen in this zone is a symbol of the old Brabant.

We walk back up via the Ferme urbaine into Val Maria, where Steyn points out colonies of wild bees (nesting in the sand between the road bricks), and that the whole garden city is an important ecological network.

We then head towards the Forest urbaine, going past a corner (facing the roundabout when you exit Val Maria) where the Ferme urbaine used to be located, and where pastoralists used to water their flocks (according to ancients of the neighbourhood), as it was a wetland with springs.

3) Being a *flâneuse* in NOH: experiencing place and feeling topography



Figure 3. 57. One of the ponds in the *aulnaie marécageuse* of the Urban Forest in NOH

Walking and cycling extensively in NOH allows for an exploration of varied experiences based on **different modalities of exploration**; going on the traces of the PV-GW ; greenery and distances, cycling to understand different connections and disconnections. Cycling especially allows for a feel of **slopes**, establishing favourite routes (to/from) depending on slope levels; “points noirs” (e.g. the descent of Avenue de Versailles) due to car presence (though that road is objectively a joy to cycle down, you get a big adrenaline kick from the speed).

In **walking around**, in meandering, you understand that you have been spotted and noted (people mention it later when you meet them officially, “yes i saw you around before, you were doing X” (usually something odd for the neighbourhood, like sitting underneath a tree, taking pictures..)) ; discovering the emptiness of many of the sites, the distances that are more or less comfortable to walk (e.g. realising that walking up to Val Maria the long way around via Avenue Versailles is absurd when you can take the Chemin du Pendu), places that feel far even though they’re within a 10min walk (in pure google maps terms, like François Vekemans from Versailles). Important modality also for discovering the different walking routes linked to the work of the Promenade Verte - Groene Wandeling asbl/vzw (association defending green spaces, their biodiversity and walkability, in NOH), and for exploring the effect of the work of colleagues in the Forest Urbaine (with its wooded areas, marshlands and ponds (pictured here)).

These are all elements that could enter a potential subjective cartography output. The sound bites that were recorded during these solo walks were uploaded onto the URBiNAT layer of the [BNA-BBOT Brussels sound map](#).

3.4.2.2. Cultural Mapping

In Brussels, the cultural mapping protocol was used for the co-diagnostic phase, to identify a **baseline understanding of places, people, resources** (tangible, intangible), and opportunities / risks, in order for the task force to better understand the place that they are intervening in. The cultural mapping methodology was integrated with the ethnographic exploration begun in September and October 2020.

As a **flexible method** to apprehend the field of study, cultural mapping was a very generative method in the Brussels context. It became a **structuring, umbrella methodology**, a way to engage with the field, and allow for following emergent opportunities and synergies generated by this interaction with the study area. As such, it was also very easily combined with the walkthrough (5.2.1), photovoice (5.2.3), focus groups (5.2.4), and interview (5.2.6) protocols that are also part of the Stage 2 methods developed by the consortium. ***There may be some overlap in discussing these protocol implementations, as the work in the field was not so clear cut as it is presented here.***

As a subjective mapping exercise, this protocol also made sense in NOH because a similar type of work had been in previous years by some artists (e.g. the Geographie subjective project led by Catherine Jourdan), and also by the Maison des Cultures with an output called *Le chant des pistes* (2016). Making use of cultural mapping thus allowed us to draw on these past works, and to provide an update of sorts, to complete their blind spots where possible, and engage with unusual suspects in a more conscious manner and use them as inspiration for reflection on **outputs**. As such, besides this report (D2.6), a “neighbourhood artistic synthesis” will be elaborated in French and Dutch, in collaboration with an external artist, in order to facilitate communication and discussion around the results of this document. The particular format of this synthesis has yet to be determined.



Figure 3. 58. Scan extracted from the *Chant des pistes* book, showing collages produced by participants in the artistic workshops

Additionally, cultural mapping as an exercise of co-analysis allowed us to set the **basis for future co-monitoring and co-evaluation**: by directly involving inhabitants and other stakeholders in the diagnostics through participatory activities, they may feel more involved in the future phases of the project, and capable of evaluating its progress over time. In this way, cultural mapping served

almost as a pretext for creating networks and reinforcing dynamics of interaction in the field. For example, it enabled the Brussels task force to become embedded in the Social Coordination⁶'s diagnostic working group. Cultural mapping thus acts as a **catalyst for a process of co-creation**.

As there are many other activities and projects taking place in the Living Lab area, it was necessary to coordinate with them in order to better synergise and combine our efforts, to better produce a coherent and thoughtful process.

- The **participatory budgeting** of NOH-Mutsaard was coordinated with, to gather information on dreams and concrete projects that inhabitants are proposing and interested in.
- The **Contrat de Quartier Durable Versailles (sustainable neighbourhood contract)**, presently in its own diagnostic phase (Year 0: August 2021 to May 2022), will prove an invaluable asset and partner for participatory activities and the implementation of interventions in Versailles.
- The **positive identities project** initiated by the para-municipal organisation BRAWVO was intended to serve as an input for reflection on tangible and intangible cultural assets, and perceptions of and within the neighbourhood, however this project is currently on hold.
- Our local diagnostic was coordinated and done in collaboration with the **diagnostic working group** of the Coordination Social.

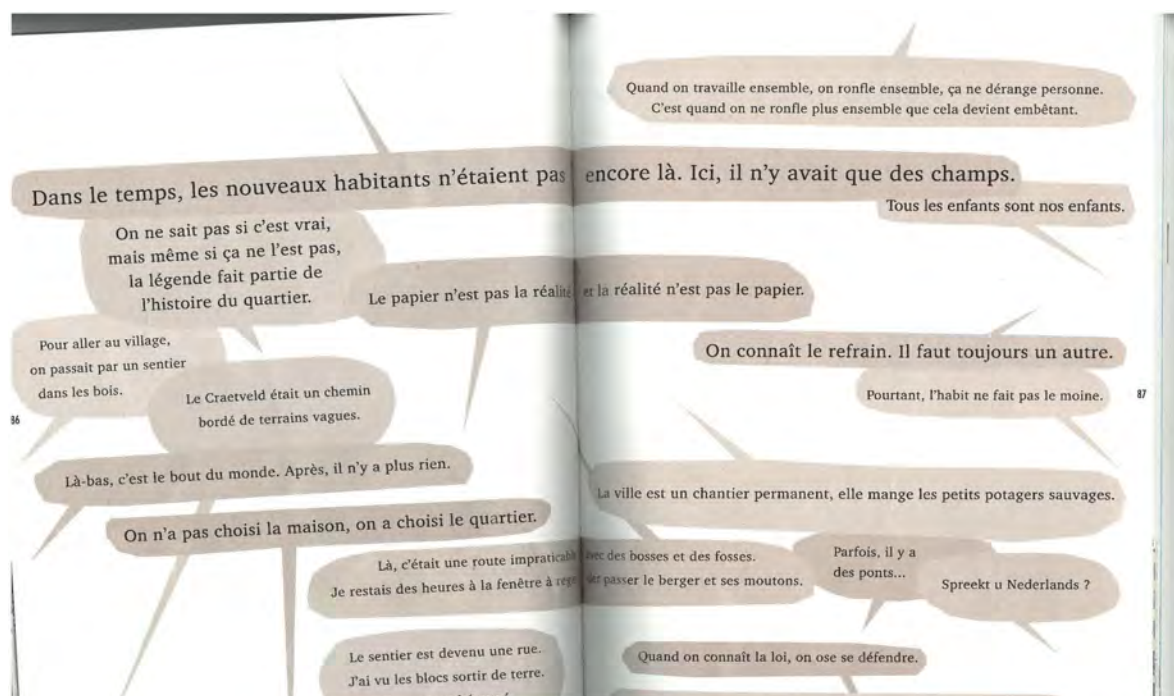


Figure 3. 59. Scan extracted from the *Chant des pistes*, a synthesis of phrases gleaned from participants in the artistic workshops

⁶ The *Coordination Sociale* or Social Coordination is an umbrella organisation that regroups all associations present in a defined territory or neighbourhood ; in this case we worked with the *Coordination Sociale* of Neder-Over-Heembeek, which regroups some 30-40 organisations.

Generative activities in the field

In Brussels, a **series of methodological tools** were mobilised within the cultural mapping framework:

- **Workshops** (online and in-person, with different scales, partners, and target audiences)
- **Walks** (exploratory, guided, artistic, ...)
- **Interviews / focus groups** (including phone calls, ranging from informal to structured moments around general or specific themes and questions)

Within these tools, **different modes of interaction** were also explored, using techniques such as photovoice, arts-based participatory methods (see [SUSPLACE arts-based toolkit](#)), and event-based discussions (such as film screenings with critical discussions).

- **Participant observation** in as many citizen initiatives and activities taking place in the field, “octopus” technique (a hand in everything, to gain at least a superficial understanding of all projects in the field)
- **Moments of dwelling** in the field, again along the mode of ethnographic participant observation (sensory, visceral sensibility), taking notes, creation of visual artefacts and soundscape recordings
 - o Objective is to gain a feeling for the different spaces of the field, at different moments in the day/week/season with different weather and modalities of being (biking, walking, sitting); using the *flâneuse* technique as often as possible
- Reflexive stance: « This in order to challenge what might become ‘automatic’, to reflect on the ways in which my methods and positionality may risk ‘accompanying imperialisms’, and “to live more in and through slow method, or vulnerable method, or quiet method. Multiple method. Modest method. Uncertain method. Diverse method” (Law, 2004: 11). »
- **Interviews** organised with inhabitants and stakeholders on an “opportunistic” basis (snowball sampling), open-ended interviews, with possibility to schedule a second, more targeted interview moment to deepen the conversation on specific themes
- **Whenever possible**, presence in public space: either using the “**salon public**” tool, or tagging along with the AMO’s street presence
 - o Identification of different key sites
- Participation in meetings of the **Coordination sociale** (every 2 months), and the diagnostic working group to establish a common plan of action and analytical themes
- Targeted **focus groups** and **workshops** organised in collaboration with associations in the field: Maison des Enfants, Maison des Jeunes (TBC), Maison de la Creation, Collectif 1984, AMO de NOH (TBC), Nordine (Val Maria)
- *Planned* : Presentation of URBiNAT to the **Conseil de quartier**, develop our common objectives and possible synergies

The **target group(s)** of the cultural mapping activities were the following:

- Inhabitants of the social housing neighbourhoods Versailles and Val Maria for site-specific diagnostic
 - Youth focus: young children, young adults (emphasis on gender-inclusion)
 - Women
 - Elderly people: difficult to access with covid-19 (no physical and difficult digital)
- Inhabitants of Neder-Over-Heembeek for generalised diagnostic: identification of overarching dynamics and themes
- Key individuals in NOH and Versailles/Val Maria: champions and gatekeepers
- Associations part of the *Coordination sociale*: particularly actors working on the ground in close collaboration with inhabitants
- Key business owners that are interested in supporting community activities or have vested interests in targeted spaces: these have not been reached yet, but should be engaged in later stages of co-creation

Ethnographic fieldwork: purpose and methods

From the perspective of the ethnographer, in this case Laetitia Boon, the purpose of the ethnographic fieldwork begun in September 2020 was manifold:

- To understand the inhabitants' and organisations' expectations with regards to URBiNAT, due to the prior contact with the previous project coordinator and transitional period in between made awkward by the covid-19 sanitary measures (lockdown in place)
- To understand how people use their space. This had the potential to substitute for the behavioural mapping protocol, but there was unfortunately insufficient time and human resources to do this quite as systematically. However, a practice-based approach for the analysis of qualitative data gathered in the field provides a preliminary indication in this direction. This also implies getting a feel for the practices that are taking place in the different spaces of the neighbourhood, and to get an intuitive feel about the gendered dimensions of these practices, which can be further explored with other methodologies (e.g., walkthroughs).
- To become more visible to the inhabitants – as a project and as a coordinator both – and to give passers-by the opportunity to ask me questions about the project, express doubts, enter in dialogue with the project (see also “mobile public living room” tool)
 - A key advantage of this is that there is the potential for creating spontaneous connections with people you may not be able to meet in the more structured activities
- This positionality also provides an opportunity to be attentive to the space and the things taking place in it: pragmatically, this means hearing about activities and events that may not be otherwise publicized, and thus be able to attend convivial moments in the neighbourhood

- To develop an affective and visceral feel for place, generating a point of contact and an embodied, intuitive knowledge of the neighbourhood
- To build **trust** between the project coordinator, the organisations and the inhabitants, on the basis of which workshops can later take place.

This process and approach is very similar to the way in which Porto approached the field in Campanha, which has been conceptualised as a “proximity process”.

Methodological tools for the ethnographic fieldwork

- Visual ‘note-taking’, creation of visual artefacts in the field (taking pictures and drawing while in the field) (Dowling et al, 2018; Banks, 2002)
- Participation in various community activities (Pink et al, 2010; Degarrod, 2013)
- Walking as research and sensing practice, and as a flaneur (Wunderlich, 2008; Pink, 2008; Amin & Thrift, 2017)
- Auto-ethnographic notetaking, focused on embodied experiences of public spaces (Caudwell, 2011; Kim, 2015)
- Informal conversations with inhabitants about the future of public spaces, their relationship to nature
- Recording of soundscapes and audio-memos (Duffy & Waitt, 2011)

Key result of the ethnographic approach: setting the basis for the next phases of the project; **trust, network, pre-projects, common ground/interests**

- Octopus strategy: being present in many places at once, having “feelers” out for potential opportunities and synergies, trying to coordinate with as many actors with whom our objectives aligned
 - some concrete examples: pilot project with Ferme urbaine and PCS/PV/VLM ; salon public mobile as a collaboration that emerged from common field moments
- Becoming a reference point for knowledge about the field: for my colleagues at the municipality, but also for associative workers when they need info about municipality projects (e.g., CQD)
- Having a good knowledge of places, being able to understand inhabitants’ reference points, being able to guide discussion in certain directions (at the risk of “leading” too much based on prior knowledge)
- Becoming a background person, a known figure in the neighbourhood

Creation of the “mobile public living room” / “ludomobile” (pilot NBS development)

An interesting example of the potentiality of the iterative approach to the field is the creation of the “salon public mobile/ludomobile” tool that was co-developed with members of l’AMO de NOH. In co-

presence in the field on Wednesday's afternoons, we realised that we had an interest in common in creating a pedagogical and playful tool for interacting with strangers in public space.

Its purpose is multiple, and it is intended to be in constant evolution, and it is not yet (or ever) finished. It will host storage space for elements of conviviality (seating, hot drinks, snacks) and giant games that encourage collaboration rather than competition.

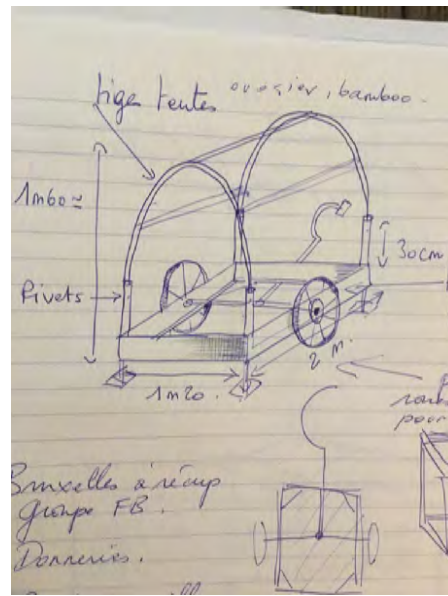


Figure 3.s 60 and 61. Preliminary drawings of the “ludomobile / salon public mobile” project, and the trailer as it was created by the municipal workshops

Micro-trottoir: engaging strangers with sound in the street

The *micro-trottoir* (literally: microphone-sidewalk) is a mode of sound collection developed to gather quick interviews with people present in the street (often strangers), based on a simple question. The recording of short interviews serves as a pretext for engagement with a target group (“unusual suspects”) that is otherwise more difficult to reach via “traditional” methods (such as

focus groups), and thus is a complementary tool to other modes of engagement, of being-in-the-field. The methodological reference for this tool was drawn from a very useful guide published by the ACSR, a local association that works with radio as an emancipatory tool and publishes pedagogical tools for independent creation.

This tool **was first tested out in an afternoon activity with the AMO de NOH**: an activity that brought together a number of children of the neighbourhood and gave them the tools to go and engage with strangers in the street. During this excursion, the question asked was “What ties you to NOH?”. Answers were varied, but often recalled links to family, friends, or specific activities (e.g. visiting the doctor), and a ***particular affection for the greenery and conviviality linked to the “village feeling”***: knowing people in the neighbourhood, having a long history of attachment to this place, and feeling “at home” were key.

In a **second exploration with an intern and the project coordinator**, a more open-ended series of questions was used to engage with passers-by. At the **Zavelput**, we interact first with a mother who is watching over her child in the playground. We ask her what brings her there (“*Qu’est-ce qui vous amène ici?*”), and realise she comes all the way from Schaerbeek (where she has been living for over 20 years) to bring her children to school, because a friend who lives in the neighbourhood recommended it to her for its educational level. She walks when she is alone, to get some movement in her day, but with the children she takes the bus. She likes to come to NOH, it has an especially nice feel to it, it’s quiet when coming from Schaerbeek. Then, we interrupt three girls sitting on a bench in the sunshine, eating take out from the nearby *snack*, and ask them also what brings them there. It was a convenient spot to meet after school (De Wand and St Nicolas), nice to sit there in the sun instead of at home.

Later, at **Versailles**, we encounter three older people (a man, possibly of Mediterranean origin, and two women, of African origin) who are sitting on a temporary bench made of pallets (*I suspect the AMO is behind this installation*). They invite us to join their moment of conviviality and tell us about their lives in the neighbourhood. They are long term dwellers of Versailles, but also have multi-cultural backgrounds and the diversity of accents that come with it. They compare their current living situations with previous ones (not a positive comparison), tell us what they miss (a space to garden, access to employment), ask us what we’re doing (we try to synthesis the project as best we can), tell us about their growing children and the time they’ve spent here. A conversation that was intended to be just a couple of minutes becomes a stay of over 15 min: a rich encounter. (*They recognised my face, probably from my observation moments.*)

Emerging/emergent results of the cultural mapping protocol

What emerged from the engagement with the field through cultural mapping is the incredible cultural richness of the study area. Far being “just” a deprived neighbourhood, there is a local vitality and resourcefulness that makes it at times questionable what the purpose of URBiNAT really is in the neighbourhood.

Youth (particularly teenage boys and young men) are self-organising into associations in order to be able to access financing for audio-visual projects, are testing out entrepreneurship and autonomy practices by breeding rabbits and chickens and are taking care of their physical and mental well-being by making physical activity (boxing, calisthenics) part of their everyday routines. They express a degree of confidence in their own abilities, in their hobbies, which shows a drive to “go somewhere”. The support from the “older brothers” in these activities can be essential to their success and is a marker of solidarity practices. Mothers are particularly engaged in developing opportunities for their children (e.g. by organising self-expression workshops, so that they may be able to handle situations with more comfort (when faced with the police especially) and express themselves better in general).

The local associative sector is very solidary and active in creating a local cultural offer. The *Maison de la Création* is an active social and cultural hub, and very disposed to enabling dynamics that make sense for the neighbourhood. The *GC Nohva* is active in generating collaborations (Living en Ville) and in testing out other ways to be together in public space (the “*balades brocantes*” were a resounding success in summer of 2021). The challenge in this context is to be able to detect synergies and potential crossovers and overlaps *before* noting redundancies and doubled-up work (as was the case with the myriad of diagnostics taking place at the same time that needed to be coordinated). The *Coordination Sociale* can serve as an essential organism for generating this kind of cross-pollination of work but needs to be strengthened in its activities.

The **role of URBiNAT** within this fertile context is as an **enabler and facilitator**, rather than as an **instigator** of new projects: many of the ideas are present and budding in different networks but need to have a space to land (implying technical, financial, material support, depending on the project). The Living Lab can act as a hinge for the materialisation and actualisation of desires, needs, dreams; the local task force can become a contact point for the setting up of synergetic relationships (open address book and relationship-builder).

3.4.2.3. Photovoice

On the 11th of December 2019, the first workshop with children took place at the *Maison des Enfants* in Versailles, NOH. The children participated in a photovoice workshop to give their opinion on their neighbourhood and on the development of the future playground (south part of the so-called *coulée verte* which traverses this neighbourhood), which was intended to be redeveloped in 2020. The children finished the exercise by drawing their ideal playground. These results informed the work of the Green Spaces department of the City of Brussels and is now visible in a completely renovated playground that was inaugurated in July 2021.

In spring of 2021, a **sonic variation of photovoice** was done with children from the Association de Jeunesse Val Maria. Children were sent out in small groups to walk around their neighbourhood and collect sounds, which they then presented with the help of post-it notes, phones, and a map of the area (A2). After a first round of walking and presenting, they were then sent out with a more specific prompt about “sounds from home”.

This exploration of the neighbourhood through sounds provided a new way to interact with an otherwise well-known place. Some children began explicitly interacting with their environment, exploring different sonic textures by making things move (rather than passively waiting for sound to happen). It also allowed them to walk around in their neighbourhood with a different purpose, and thus discover new places they didn't know before, e.g., the Ferme urbaine, which is a bit out of the way, and which many inhabitants of Val Maria do not know about or do not feel entitled to visit just out of the blue.



Figure 3.s 62, 63, 64. Pictures taken during the photovoice workshop with children of the *Maison des Enfants*

Collecting sounds and presenting them to one another also allowed the children to talk about different elements of what makes “home”, including everyday activities (showering, sweeping, getting mail, sitting in a sofa at the end of the day), but also attachments to other places: for example, many children are still connected through family to Morocco, and return there during summer holidays. Listening to the donkeys at the Ferme urbaine helped them to talk about differences between Morocco and Belgium (the donkeys do not make the same sounds) and tell stories about their multi-spatial upbringing.

3.4.2.4. Focus groups

A number of focus groups were conducted with children and teenagers. These were the most accessible group in times of covid-19 pandemic (only ones allowed to gather for much of the lockdown). They were also invaluable in their insights into life in the neighbourhood, as they both repeat the narratives that they glean from their environment, but also have a deeply experiential understanding of the place they live in.

A lot of attention was placed on integrating “joy” as a key element of these workshops, as it was deemed essential that these moments of participation in themselves needed to be “health-providing”, and not a source of boredom or disinterest.

Please see Annex 9.3 for an overview of workshops conducted (and planned), irrespective of format.

1) Workshop - Maison des jeunes 19-2-20:

This workshop brought together teenagers between 12 and 17 years old, with more boys (6) than girls (2) present (representative of the gendered division of teenagers going to the Maison des Jeunes). The children lived in different parts of NOH (most living in Versailles), and many went to school outside of NOH (in Laeken or Quartier Nord). They saw their friends mostly in Versailles, at the MJ, at home, or at the Zavelput (favourite snack shops). None of them consider that they “hang out” in nature.

Discussion with the group while pinning activities on the map:

About shared public spaces:

- The two girls (12 years old) say that they (and their friends) would like to use street workouts but that they don't dare because they are monopolized by boys and men and are not suitable for girls. They would like one towards the “piste rouge”, near the police station where boys never go. The boys confirm that they never go to the “piste rouge” because the police can see them from the windows. Boys explained that they don't want the police in the neighbourhood, the girls think that when someone destroys or messes up, they should be forced to do community service.
- The group has a bad feeling about the nearby school “Les Pagodes” and does not identify it with the neighbourhood.
- The girls want the “Villo” bike stop to be removed because the bikes are often destroyed.
 - About bikes: they all have a bike, and they store them in the basements, parking...
- About the question of the lack of colour in the neighbourhood (issue raised by the children's Maison des enfants group): they like their neighbourhood like this and aren't especially interested in street art, painting...
- They think that the “avenue de Versailles” road is dangerous (the cars drive fast) + the roundabout at Versailles and Beyseghem crossroads.

About the playground and the sport pitch:

- The 2-football pitch are fine (this group is not interested in basketball);
- The boys want an outdoor boxing ring!
- Benches in the playground and near the street workout and grandstands near the pitch to be able to sit down and talk to each other and watch without a party standing;
- Remove the sandbox (dirty);
- More games, because the children have quickly gone around;
- More trees in the playground and near the pitch (they used to come with ropes and climbed in trees) and they need shadow in summer;
- There's a problem with the fountain: it doesn't work the whole year and they really want to use it, there's need of a second one in the playground.

About the paths in Versailles:

- They want the path repaired that links Versailles to Val Maria (because it's a shortcut): too slippery, too muddy and too dark;
- They often use the path "Allée des moutons" but It's all muddy and bumpy (even with bikes), so they don't use it when it rains but it's a shortcut to go to the shops of De Wand => they want asphalt.

About the boxing classes:

- Due to the delay in the opening of the agora area and the boxing classes: the boys have all registered in clubs further away.

Discussion with the group while walking (walkthrough) – they led the walkthrough:

1. **They like the football pitch –grandstands** near the pitch to be able to sit down would be nice;
2. The **garbage** cans are always **overflowing** – dirty;
3. They often use the path "**Allée des moutons**" but It's all **muddy and bumpy** (even with bikes), so they don't use it when it rains but it's a **shortcut** to go to the shops of De Wand => they want the **road paved** so they don't get dirty when they use it to visit friends or run shopping.
4. The **piste rouge** is used by kids, it's too close to the precinct for the "olders". It's not very used because it's **damaged**. The girls like the place and would like a "**street work out**" **adapted for girls** here.
5. Example of an **informal passage** to avoid going all the way around from the "piste rouge" to the sports fields
6. They would like **benches** to be able to sit when a group is using the street workout. The boys dream of an outdoor **boxing ring** next to it. There used to be **trees**, where they could climb and that provided shade.
7. Youth groups like to sit on the platforms but there is a lack of **benches** arranged in a user-friendly way. The girls dream of a prefab that would be a "**cafeteria**".

2) Action-theatre workshop (Collectif 1984, @ MC-NOH)

This two-part workshop organised with the Collectif 1984 (an action-theatre collective based on NOH) fit within the theater workshops that they organise throughout the academic year for children of the neighbourhood. The purpose of this year-long activity is to provide a first exploration of acting for primary school children, and for some the possibility of developing their skills further, through the co-creation of a unique theater play that is presented at the end of the year. In the specific sessions organised with URBiNAT, the children explored their relationship to the streetscape through character-building: exploring how different people may engage in different practices in the streetscape.

Some key elements that emerged from this workshop was the proposed **intergenerational cohabitation** of people in public space (illustrated by the confrontation of children playing with water guns being told off by an adult figure (old grumpy man or stern father)), and the **desire to play**, combined with **aspirations to greatness** (illustrated by the improvisation where the end-goal was to rob a bank, but the children get side-tracked along the way because they are eating pizza and then playing in the playground for too long; characters developed are archetypes of the rich and famous (a rapper, a youtuber, a bourgeois lady, a rich man)).

3) *Maison des Enfants* during Carnival holidays 2021

The purpose of this workshop was to explore the children's relationship to their neighbourhood and the streetscape through an affective lens (collective poetry exercise), and then to explore the imaginative possibilities of things that could inhabit the streetscape (3D modelling).

Collective poetry: first associations with the street are mobility-related (car, bus, etc.) and large immobile structures (houses, buildings, schools); when you start fishing you get to nature, which is focused largely on birds; the presence of bins/refuse collection points is highlighted

3D modelling: The boys created mostly football pitches (goals and a ball, or a flat structure), were they simply copying each other? Had trouble creating detail and were generally less enthused by the activity (didn't want to keep the playdough, but rather went for the figurines). Girls created flowers and bouquets (Valentine's Day was not so long ago), hearts and candied apple ("pomme d'amour", the "fruit of love" according to them), more detailed structures (a car, a maquette), food representations (tacos, "comme chez O'Tacos"), and were excited about keeping the playdough.

Placing the playdough on the map at the end of the activity was likely the most engaging aspect for them, as they were very keen to interact with the map, to show me where they lived. Their spatial understanding of their neighbourhood was fascinating to see, particularly to understand their key reference points (the playground and football pitch, home and school).

« Tu habites Val Maria ? // Ben oui. »

Children established a connection with me, manifest later in the day when I was in the area again and they came by to say hello, to ask questions, etc. This hopefully set sufficient basis for the

demystification of the adult, creating enough of a basis for them to feel comfortable coming up to me in the future. In the summer months, when I met the group again through outdoor activities with the AMO, they recognised me and remembered the activity we had done together quite precisely: there is definitely the basis of a good rapport being created.

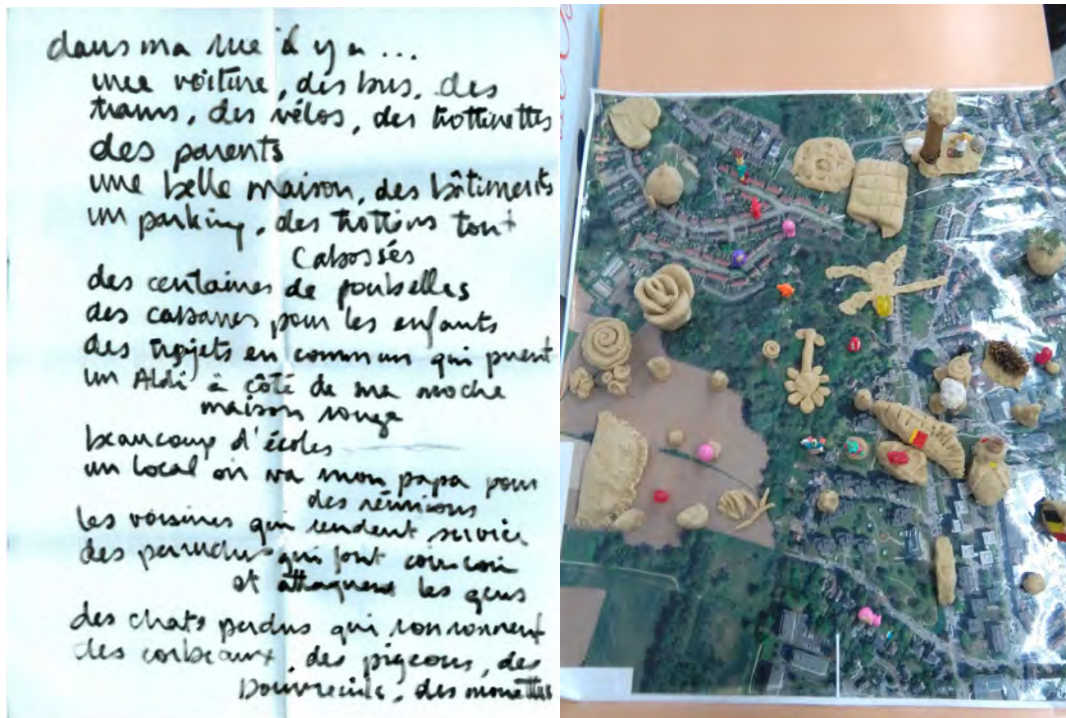


Figure 3.s 65 and 66. Scan of the collective poem answering the prompt “In my street there is...”, and the playdough sculptures created by the children and positioned on the map of their neighbourhood

3.4.2.5. Behavioural mapping

This protocol was not undertaken in Brussels but was replaced in part by the ethnographic fieldwork conducted from August 2020 to August 2021 by Laetitia Boon, and described in section 5.2.2 on Cultural mapping.

3.4.2.6. Face-to-face interviews

Throughout the fieldwork period, interviews largely took the form of informal conversations, with some guiding questions or points of interest prepared in order to (re-)orient the conversation if it were to struggle along or diverge too much. The Task force reached out to key inhabitants and actors (gatekeepers) in order to establish a first contact and hear what they have to say (defined as broadly as possible, in order to allow as many unexpected elements to emerge as possible), and used these interviews as opportunities to snowball sample other potential persons of interest to the project.

With certain interviews, there was a particular objective in mind: a shadow area or knowledge gap that needed filling, or a particular project-direction that was worth exploring. These interviews and conversations were not intended to be a one-shot event that comprehends the entirety of someone's profile/life/engagement. Rather, they were intended to be the start of a conversation that may continue throughout the duration of the project's life.

Objectives of interviews:

- To spend a moment of time, one-on-one, with actors and inhabitants of the neighbourhood, who are either
 - often present at large-scale meetings without having a direct contact with URBiNAT, or
 - who are less available via other modalities, and require a specific moment of reaching-out
- To allow (his/her) stories, collective imaginings, and imaginaries to emerge
- To get a glimpse of potential lines of action for micro-NBS projects
- To reinforce intuitions and emerging themes
- To establish a relational contact, in order to better connect with the members of this community(ies), and lay the groundwork for future collaborations

3.4.2.7. Neighbourhood Survey

In the Brussels context, and considering the Covid context, it was initially deemed tactless to ask questions about social contact in a moment where people sometimes had not had the chance to see their loved ones for several months. Additionally, the practical issues with conducting a field survey in a context of limited people allowed in public space complicated the possibilities for conduction. Phone surveys, an option initially explored in public tendering, also posed problems as few people have fixed landlines or phone numbers noted in public annuaries.

It was thus decided to adapt the questionnaire to an online distribution, using the platform Checkmarket (part of the internal tools of the City of Brussels). However, this platform did not lend itself well to high response rates in this moment in time, as it was very dependent on the ability of the team to distribute the link (time consuming in terms of field presences, for low results, and requiring "online popularity" for distribution via social media (not yet sufficiently established in our case)). Externalising this distribution may yet be required.

Conduction via Checkmarket was ongoing as of August/September 2021, but this form of deployment of the protocol was in the end quite inefficient, and the local task force did not have the capacity to reach the necessary sample size. Public tendering is once again being considered, with results possibly being integrated in later deliverables (such as the local urban plans).

3.4.2.8. Laboratory analysis

This protocol was too premature to deploy in the Brussels context. It was deemed necessary to be further on in the co-design process, with more precise spaces identified that required soil quality checks, before making use of this costly tool. Thus, it is possible that the Brussels team will make use of this protocol in support of the local urban plans later in the project lifetime.

3.4.2.9. Territorial Mapping

This protocol was implemented internally at the City of Brussels using GIS layers already available in our internal database. However, with regards to the mapping of empty lots in order to identify their potential for the implementation of the Healthy Corridor, this information was deemed sensitive in nature, as proper analysis of the potential needs to accompany what may often be seen as “pure potentiality”, although it is often conditioned by a variety of complex factors which do not enable “simple” occupation.

- Map 1: Synthesis map
- Map 2: Pedestrian mobility
- Map 3: Vacant lots



Figure 3. 67. Synthesis map produced on the basis of the territorial mapping protocol

In the synthesis map above, we can see that there are certain nodes concentration around main avenues, notably the Avenue Versailles, which concentrates many school facilities, and the Rue François Vekemans and Place Peter Benoit (between Zavelput and Peter Benoit, historically the

town centre of NOH) which also concentrates educational and cultural facilities. These two east-west axes do not so easily communicate between each other.

Public housing is concentrated in Versailles and Val Maria, the former of which also concentrates a large set of important neighbourhood-level infrastructures and facilities, and public green spaces (notably the Craetbos and the so-called “coulée verte” of Versailles). This makes them important areas within the neighbourhood of NOH, but as can be noted in the results of the cultural mapping, they are not consistently valorised as such in general perceptions of inhabitants of NOH and are not frequented to their full potential (indicating a lack of social mixites).



Figure 3. 68. Pedestrian mobility map produced on the basis of the territorial mapping protocol

We can note in the map above summarising **pedestrian mobility** that there is a dense network of pedestrian paths (forma/informal) within the neighbourhoods of Versailles and Val Maria, but that blocks are much larger and less permeable in the other sub-neighbourhoods around these. This is likely linked to the drastic change in building and urban typology between the different areas of urban development, but can indicate the incompatibility of mobility practices on a hyper-local versus wider neighbourhood level: within Versailles/Val Maria walking may predominate, but for other neighbourhoods use of public transport and/or cars may be more dominant (linked perhaps also to other socioeconomic indicators). This implies that the permeability of the surroundings of Versailles/Val Maria for its residents may be less than desirable: this can become an axis of action within the local urban plans.

There is also a notable north-south division in terms of permeability of blocks/density of walking paths. The north (including Versailles/Val Maria and the Forêt urbaine/Bruyn/Nos Pilifs zone) are

more walking-friendly, but the south is more marked by its industrial past linked to the canal zone, and to unifamilial housing units creating large blocks linked by car-dominated street infrastructure.

To be noted also in this map is the incline between the canal zone and the relative heights of the north of Heembeek. On the ground, as a pedestrian this incline is felt most between the lower part of the Heembeek road and the Zavelput and the entrance of the pool. A plateau around the Versailles/Zavelput/Peter Benoit axis makes walking easier in these directions. Going up to Val Maria and towards Bruyn is again quite a sharp incline. These can be felt even more intensely when cycling these main axes.



Figure 3. 69. Vacant lots and buildings map produced on the basis of the territorial mapping protocol

Above, we see that there are a series of **vacant buildings** concentrated in the central (older) parts of NOH, with a particularly high density around the swimming pool/sports complex of the Solarium Park, particularly on the roads of Château Beyard, Warandeveld and François Vekemans (though the situation in the latter has been improving recently). These are almost all what is termed in French a “*dent creuse*” (lit. “empty tooth”), a plot of land that has not been developed and which often from an urban planning perspective needs to be filled in (usually with housing). They are likely leftovers from when NOH was much more dominated by agricultural activity, and they occasionally host an interesting set of plant species (and possibly fauna too). The exception is for François Vekemans, where the vacancy rates are rather linked to buildings with a commercial vocation. This distinction between unoccupied lots (*friches*) and unoccupied buildings is essential, as it points to different dynamics and histories of place.

In the northernmost part of the neighbourhood, there are a number of industrial buildings that are vacant, linked perhaps to changes in the industrial character and dynamics in the BCR.

It must be noted that their status as “unoccupied” does not directly indicate potential for requalification and/or temporary occupation, but rather indicates an issue that may have multiple solutions.

Although there is a high presence of green spaces, these are almost all already affected to a specific use, and thus in very few cases provide opportunity for a landscape (re)design. However, within these spaces, specific interventions particularly regarding *connections* and *interstices* between spaces may prove beneficial in increasing the green/blue “meshing” in NOH, including biodiversity corridors, mobility pathways, etc (to be determined on a case-by-case basis in light of a holistic understanding of the meso-situation).

3.4.3 Conclusion / Synthesis

In this section, we will first go over a number of general themes that are of interest in the neighbourhood, and then focus on themes and analyses that are particular to the social housing neighbourhoods.

Neder-Over-Heembeek

The wider Neder-Over-Heembeek area is a fragmented space, with a clear distinction between the “old” NOH and the social housing neighbourhoods and resulting tensions between inhabitants of these different neighbourhoods. Throughout the fieldwork period, the distinction between the social housing neighbourhoods of Versailles, Val Maria, and Craetbos, as sub-neighbourhoods within NOH, was very marked. It is the source of auto-identification (positive and negative), stereotypes (from outside, and self-identification with these narratives), tensions between sub-neighbourhoods (clashes between youth). Much of the associative work at the moment is trying to tackle this issue of **fracturing** within NOH: the café citoyen of the participatory budgeting, the positive identities project of BRAVVO, the *ludomobile* project, cultural events reaching mixed groups, social mediation of various associations, to name but some.

The split between the “old” and the “new” inhabitants of NOH is quite flagrant and is socioeconomically marked. “Old” inhabitants are against the tram, against new housing that is taking away their village feel, their green spaces, their feeling of being a quiet suburb of Brussels. “New” inhabitants (they have sometimes been there for a couple decades) are social housing renters (primarily), who need to be better connected to the rest of Brussels, who feel isolated and abandoned by those in power. Both groups have a resourcefulness and social cohesion that stems from their attachment to place, and from necessity (particularly in the case of social housing renters, who do not have sufficient support from outside, and thus rely on inner ties of solidarity to improve their quality of life).

It is a quiet neighbourhood, not very dense, and especially in times of covid there are few people in the streets. Key infrastructures such as the sports fields and centres draw more people, but the lack of small-scale commerce and HORECA in most of the streets means that there is little gathering of people in the first place.

Issue of language as challenge of intercultural proximity

Historically NOH is a Flemish village, which after its annexation in 1921 underwent a series of arrivals of new linguistic populations: first the francophones after the war, then people of various immigration backgrounds (following the national trends), Italian, eastern European, Arabic, linked to the social housing needs of these populations. The linguistic divide is felt in everyday contexts, in mundane activities such as shopping at the corner store, which is part of the reality of a multicultural city such as Brussels. The issue is more strongly felt in the inclusivity (or lack thereof) of cultural events, associative meetings, and to some extent in administrative contexts. A typical Brussels solution to bilingual meetings is proposing that everyone speaks their language. However, for inhabitants from immigration backgrounds who have not had the opportunity to develop their French and Dutch language skills this can be a challenging solution.

Children in public space

In the theatre workshops, and the conversations emerging around these workshops, it became apparent that there seems to be something “different” about the ways in which children interact with public space in NOH, versus other neighbourhoods of the BCR. The comparison was drawn with children of e.g. neighbourhoods in Schaerbeek, where there is a high proportion of populations having Turkish or Moroccan cultural background, and where children are seen playing unsupervised in “agora-spaces” (mixed-use public space with sports-oriented affordances). Here in NOH, their knowledge of different spaces is limited, and they are more “indoor children”; their world revolves around TVs, smartphones, and computers, and the different media that they distribute. Nonetheless, playing in playgrounds is part of their understanding of public space, but it is likely that beyond these spaces which are explicitly coded for play, they do not feel entitled to other public spaces, or are not allowed to go to them, and rarely have the opportunity to be in these spaces with freedom of action.

Collective trauma around densification and urbanism projects: *Les irréductibles heembeekenaars*

In the subjective map project drawn on the basis of a series of participatory workshops in 2016, we see two striking elements: the funnel shape of the neighbourhood, with all connections going through the Van Praet bridge, and a slogan, “Village des irréductibles *Heembeekenaars*”. For those not so familiar with Belgian comic book culture, this is a reference to *Asterix and Obelix*, a cult classic comic book series that presents a village of indomitable Gauls that resist time and again the Roman invasion.

This collective narrative and the “*esprit village*” needs to be taken seriously in developing the URBiNAT Living Lab in the field: when I presented myself in the citizen café meeting as “coordinator of an urbanism project”, there was a generalised intake of breath and short awkward silence. It was the first time I had presented it as such, but the impact it has on representations of the project, and thus potential collaborations, needs to be cared for. The City does not have a good reputation in the neighbourhood for doing “proper” participation, and for listening to the “inhabitants-as-

experts” (as presented in the CIAPANOH and Coordination Sociale Livre Blanc, where a significant collective effort was made to make a counter-proposition for how to “urbanise” this “last standing village of Brussels”).

The issue of the **tram** project is emblematic of a tension that is at the heart of every discussion on the future of the neighbourhood: resisting this increasing urbanisation and densification, the “becoming-city” of an old village, with all the loss of quality of life and identity that this entails.

Stigmas and narratives: embracing them, using them, fighting them

Where the youth is concerned, there are a number of ways in which they deal with the negative stigma that is attached to them. They either internalise it, deciding that there is no way to escape the path that has been laid down for them; or they challenge it by making light of it through creative ways, or embracing that culture, *reclaiming* it, in order to let it then boost them forward; or they reject it, narratively at least, and go out of their way to prove that they are not defined by these stigmas.

Environment : green spaces for a multitude of benefits

Neder-Over-Heembeek maintains a reputation for being extremely green and walker-friendly, a heritage of its agricultural past and contemporary links to the Flemish hinterland. However, there is a lack of typological diversity in certain sub-areas of the neighbourhood, for example in Versailles and in formalised parcs, as these are designed as urban greenery, dominated by lawns (sometimes full of dandelions) and some selected ornamental bushes and trees. The urban forest and other protected spaces do have significant ecological interest however, and the municipality has been implementing differentiated maintenance practices, in order to promote the emergence of indigenous species (strong preference on their part for wildflowers, as these are aesthetically most pleasing and thus acceptable), to return spaces to their natural cycles (late grass cutting), and to reduce maintenance time/costs. This is sometimes met with the bemusement of inhabitants who are not well-informed about this change and think that the gardeners are neglecting these spaces. The latter are also struggling to adapt their management and gardening practices and are not always sufficiently accompanied in this transition.

Versailles

The neighbourhood has come under the radar of a series of projects at seemingly the same time, the ZRU, the ZIR4 (though it does not technically extend into the neighbourhood, it does have implications), the *contrat de quartier durable* (part of ZRU financing), the *budget participatif*, and a series of local diagnostics (including URBiNAT's). It has suddenly been put on the map for a series of actors, and thus is running the risk of being “overrun” with well-meaning projects that need to be well coordinated amongst themselves in order to not cause “participation fatigue” and disillusionment among the inhabitants.

The local dynamics of neighbourhood dwellers seem to be quite resilient and innovative. The *comité de quartier*, launched with the support of the PCS, brings together local actors who have a vast amount of creative energy and willpower to bring about change to their community, supplemented with know-how of how to apply political pressure where and when necessary (for example in the case of the Maison de Jeunes, or for the playground), and individual skills that are put to good use (e.g. the boxing club led by one of the *anciens jeunes* of the neighbourhood). The most visible community seems to be the North African community, and they may seem to be a bit inwardly oriented, but there is a consciousness of the need to also cross-cultural boundaries, for example through facilitated film screenings that bring them a new (cultural) perspective. Other cultural groups are also present, but less visible, such as the West African or Portuguese community.

Versailles is a neighbourhood with a family feel to it, people know each other and greet each other when the weather is nice (though the winter months are dead socially, as people do not spend time in common green spaces as much). There is a general desire to increase access to culture, general education and critical thinking, and to set up the projects they want to see happening via their own cultural/artistic/political resources. There is a big importance of “big brother” relationships in Versailles, for management of young boys, for motivating and accompanying them in their projects and self-development. There is conversely a marked absence of fathers in public debate, and it is predominantly the mothers who are seen advocating for their children (with a certain gender imbalance, as the boys are deemed more “problematic” than the girls). There is a DIY attitude in the face of a system that fails them (Projets Versailles, BKM boxing, Futsal NOH, Association VLM in Val Maria...).

In terms of mobility, the conflict between users of the Versailles avenue is in part due to its straightness, which incites motorists to accelerate (as it is a major artery connecting the A12 with the north of Brussels and the canal). A “simple” solution would seem to be to reduce this straightness by putting indents. However, it was brought to our attention that one of the reasons this road is so straight is because it is a direct path for the ambulance to go to the Military Hospital (also a reason why there cannot be a stoplight apparently).

In terms of social and solidarity economy, there have been a number of small entrepreneurship experiments that were undertaken by youth and women. There is a need to develop a space (e.g., in the conciergerie) for a small neighbourhood grocers, whilst still respecting the financial viability of the corner store, le “*petit mag*”.

Conviviality in public space is especially between people of the same “categories” (mothers with mothers, men with men, youth with youth), without much mixing between. There is a lot of social control (women will not meet men who are not related to them in a public green space, because they know they will be seen). Girls are largely absent from public space, it seems they spend their time outside of the neighbourhood (teenage girls argue that they are quite keen to go to school somewhere else, to get out), or in the home, usually engaged in what is deemed “productive” (or at least non-troublesome) activity.

Val Maria and Craetbos

Val Maria and Craetbos seem to have little going on at first, as they were designed to integrate primarily residential functions. However, when digging deeper one finds a rich history of autonomous organisation. The history of CIAPANO, a neighbourhood committee that was at the forefront of citizen engagement in the 60s, 70s, and onwards, demonstrates an attachment to place that subsists to this day in the “old guard” of Val Maria. In the newer generation, mobilisation is ongoing to provide activities for children and youth of the neighbourhood, an association (Association VLM) has recently been created and they are actively professionalising and extending their activities.

Although these areas are somewhat isolated, they have many of their own projects going on, and their own dynamics, as exemplified by the community garden, the compost, and the common chicken coop. They also have a link to the Ferme urbaine as some inhabitants are part of a GASAP (eaters of the produce of the farm). Some youths have shown interest in the farm, and wanted to set up a forgery project there. This has spurred our common reflection (Ferme urbaine, PCS, URBiNAT) about the potential to involve youth in some projects in 2021.

There is a dormant comité de quartier, and the Cocolo (renters committee) is more active here than in Versailles. The population is a decent bit older, and there is a “Club du 3ème âge” (affectionately called the “club du 4ème âge”, as all the members are aging significantly) that was autonomously managing the prefab that is just above Corbiau’s property (before the “demi-lune” where the new PMR apartments will be built). However, the community feeling here is less “tight” than in Versailles. Difficult to get people to feel implicated by community dynamics, and even when things are organised it can be difficult to get people to come. A key entry-point is via the children, especially those that are part of Nordine’s group (Association VLM).

Children (primary school age) of Versailles and Val Maria get along quite well, problems and rivalries between them only start later in high school. The spiralling staircase with the little platform midway up has been confirmed as a “problem youth” spot, and is (according to inhabitants), a drugs hot spot in the night. People seem to be afraid to go out into those spaces at night once it gets dark, and don’t complain to the police for fear of reprisals by the youth in question (but this initial account needs to be deconstructed, as it may be more nuanced than this). In line with this, we note some under-utilisation of public space, linked to feelings of insecurity, to the dark and to the presence of youth (and associated assumptions of what they are doing all the while they are sitting there: drug dealing, and insecurities linked to these practices).

The *chemin du pendu* is a contentious issue, as it connects Val Maria and Versailles, but is informal, and not extensively maintained or formalised. However, this lack of formalisation does preserve the “backcountry path” feel of this area, and the biodiversity linked to a phase of “abandonment” (not necessarily a negative effect, considering the benefits of an “*enfrichement*”).

In summary, across these sub-neighbourhoods, we see the following points of attention emerging from the field and discussions with inhabitants:

- Village identity / practices: transition of urban typology, young history of neighbourhood integrated into city
- Youth: reputations, actuality, precarity, police violence, boredom
- Elderly: isolation, loss of purpose, segregation, inadapted environment (everything is harder)
- Precarity of social housing inhabitants, contrast with comparatively good environment but poor housing (Versailles) and little mobility (Val Maria); socioeconomic context
- Greenery as a source of neighbourhood identification and wellbeing, of pride and everyday practice
- (Gendered) use of public space

3.5. Nature based solutions

In line with URBiNAT's catalogue, Nature-based Solutions (NBS) are divided in a four-fold typology : Technological, Territorial, Participatory, and Social and Solidarity Economy. This section intends to compile information on the Brussels experience with the development and implementation of NBS projects.

3.5.1. NBS policy in Brussels

There is presently **no explicitly defined NBS policy at the City of Brussels**. However, many of the City's programmes and initiatives fall within URBiNAT's NBS typology. On the one hand, we see support for citizen initiatives via calls such as the "Initiatives Durables" or "Faire Bruxelles Samen", which encourage citizen collectives to come together to create small projects with a high local impact. There have also been the very first iterations of participatory budgeting at the City in 2020, which although pilot projects, had budgets of 1 million euros per neighbourhood, in order to finance citizen-defined projects.

On the other hand we find that the City and its para-municipal agencies (such as *Entreprendre.Brussels*) is lending a strong hand to already existing citizen initiatives and economic actors, as is the case in a partnership evolving since 2020 with *Zinne asbl* and *Financité*, to promote the development of the *Zinne*: a local currency that aims at re-localising financial circuits, supply chains, and goods exchanges.

On a regional level, we see that the Brussels Capital Region and its departments also promote particular NBS-style projects and developments. Notably, the yearly funding opportunity ***Inspirons le quartier*** (Let's Inspire the Neighbourhood) targets local citizen groups and associations and supports them in obtaining funding for new, innovative initiatives that improve the quality of life at hyper-local scale. Typically, projects such as collective gardens and kitchens, solidarity initiatives, cultural and education-oriented projects, will receive a one-shot subsidy between 3,000 and 15,000 euros.

In addition to this, the Region has recently undertaken a **Brussels Donut diagnostics** (published in 2020), mandated by Barbara Trachte (Secretary of State of the Brussels-Capital Region, responsible for Economic Transition and Scientific Research), and in partnership with Kate Raworth's team (DEAL), *Confluences asbl*, and the ICHEC, in order to create a baseline understanding of the potential for a circular economy at a regional level, and to generate a dynamic network of entrepreneurs, practitioners, and researchers around this theme. Within this framework, we can expect that many doors will open up for new entrepreneurship opportunities.

The NBS projects that will be described below are multi-faceted in nature, and often fit within more than one of the categories within the URBiNAT NBS typology. This will be highlighted where applicable in the description of these projects. It can be noted from the presentation of these NBS projects (by no means an exhaustive list or description), that there is a very fertile ground for the development of future NBS projects, or for supporting the dynamics and projects already in place, in the context of the URBiNAT Living Lab. Discussions are already underway between the Brussels

Task Force and a number of actors and stakeholders about the potential to develop common projects that fit within already existing initiatives, or make use of synergies to innovate in different directions.

A more exhaustive list of projects in NOH that fit within the NBS project typology is presented in the Annexes (Annex 9.2).

3.5.2. Territorial Nature Based Solutions

1) **The Ferme urbaine du Début des Haricots**

Territorial, social and solidarity economy, participatory NBS

Address : Mariënborre 40A, 1120 Bruxelles

The *Ferme urbaine* is a pedagogical farm, situated on the periphery of the BCR, precisely on the border between Flanders and the BCR and on the outskirts of the Val Maria neighbourhood. It's primary purpose is to train future farmers in a variety of agroecological, permaculture, and generally environmentally-conscious agricultural practices. For this they receive a subsidy from the Federal government, as their trainees are usually people who have been excluded from the labour market for quite some time (i.e., it is a project of socio-professional (re)insertion).

The produce of the farm is sold in surrounding neighbourhoods through three GASAPs (*Groupe d'achat solidaire de l'agriculture paysanne*), a form of community-support agriculture that is increasingly popular in Brussels. They also host groups for mental health activities, have activities for children, collective working sessions, and open festive days with local food markets (showcasing other actors linked to urban agriculture).

A **pilot project** is ongoing in 2021, as the result of a common vision to engage the youth of Versailles and Val Maria in collective, manually oriented projects. This is a way to improve the social cohesion between these youth groups (often in conflict), empower them to feel confident in manual and creative activities, and to build a knowledge base that could then become a basis for future training in the agricultural field. The project is a collaborative reflection with the *Ferme urbaine*, the *Projet de Cohésion Sociale du Coin des Cerises*, the neighbourhood committee *Projets Versailles*, the youth activities group *Association de Jeunesse Val Maria*, and the URBiNAT Brussels task force.

Opportunities

- space to grow: surrounded primarily by agricultural lands

Constraints

- land occupation precarity: not a long term contract, and thus difficult to establish more “permanent” roots (e.g. fruit trees)
- difficult to establish consistent relations with the social housing neighbourhood (cultural differences? lack of visibility? lack of interest of inhabitants?)



Figure 3. 70. Drawing of the *Ferme urbaine* of the Début des Haricots asbl, taken from: <https://www.facebook.com/lafermeurbaine/>

2) Forêt urbaine (Val du Bois de Béguines)

Territorial NBS

Address: Trassersweg 420, 1120 Brussel

The urban forest of the Val du Bois des Béguines is a project of the City of Brussels, to preserve this open green space (over 65 hectares) and extend it as a space of high biodiversity. In 2014, the City of Brussels requested permission to cut down a generation of poplar trees dating back to the 80s that had become a danger for walkers, and to replace them with 15,000 new varieties of trees with higher ecological value.

The *Promenade Verte de NOH* (lit. Green Walk) goes through this space, connecting it to the Nos Pilifs farm, the old centre of NOH, and to the sports centre *Le Petit Chemin Vert*. It is a zone frequented primarily by dog walkers and families. It also houses the attraction park *Sortilèges*. Its amenities include benches, didactic spaces, vegetable gardens, a restaurant, and a pétanque piste.

Opportunities

- Creation of a generalised protected zone, ecological continuity
- Bringing back indigenous species and creating varied ecosystems (marshlands, woodlands)
- Possibilities for developing agroforestry projects

Constraints

- Multifunctionality of space, considering urban context, difficult to attain in view of ecological goals



Figure 3. 71. Picture of the boardwalks in the Urban Forest, taken during a field visit (by Laetitia Boon)

3) Neighbourhood composts

Territorial, social and solidarity economy, participatory NBS

9 different composts in NOH:

Worms asbl regularly trains citizens to become “master-composters”. These experts are then obliged to dedicate some of their free time to helping out with neighbourhood composts. In NOH, Annemie and Hendrik are the pillars of composting, and over the past 20 years have set up and continue to run 9 neighbourhood composts (with 3-8 boxes of 1m³).

Opportunities

- long-term expertise of the master-composters means setting up new composts is relatively “easy” (many best practices to rest upon)
- composts overtime are becoming more autonomous, run by the more direct neighbours, and settling into neighbourhood life

- golden opportunity for reducing waste-to-landfill/burning centres, for introducing circular economy principles (Ferme urbaine already makes use of some of the compost outputs, as do some neighbour's veggie gardens)

Constraints

- many of the composts are resting on the energy and expertise of Annemie and Hendrik, who though willing, are getting older, and tired of feeling alone in this never-ending fight against food waste and waste burning
- as with many neighbourhood initiatives, relies extensively on the quality of the social network, on how much free time and energy people have, and how much joy/pleasure people find in engaging in this neighbourhood dynamic



Figure 3. 72. Picture of one of the neighbourhood composts initiated by Annemie and Hendriks, taken from : https://quartier-noh.be/wp-content/uploads/2020/02/70817233_2596746670392979_5023043035257110528_o.jpg

4) **Promenade Verte - Groene Wandeling de/van Neder-Over-Heembeek**

Territorial, participatory NBS

The “Promenade Verte-Groene Wandeling” is a non-profit organisation involved in the ecological management and promotion of the Promenade Verte of Neder-Over-Heembeek. Over the years, they have established a network of footpaths that connect different parts of the neighbourhood and promote the connection of green spaces amongst themselves, working for the preservation of the environmental and historical heritage of this old Flemish village.

Opportunities

- development of a local network of walking paths

- social cohesion based on the defence of a common heritage

Constraints

- volunteer-based for management of walking routes



Figure 3. 73. Picture of an indicator of the “Green walk” managed by the Promenade Verte Groene Wandeling asbl/vzw, taken during a field visit by Laetitia Boon

3.5.3. Technological Nature Based Solutions

- 1) **Pilot research project of Nos Pilifs** : reuse of wood from construction sites in their wood shop in order to create elements (including furniture) that can be sold in their *pépinière*

Technological NBS

Address : Ferme Nos Pilifs, Trassersweg 347, 1120 Brussel

In the academic year 2020-2021, students in architecture produced a catalogue of wood creations for the Nos Pilifs farm, that made use of wood recovered from building sites. Nos Pilifs has a

woodworking workshop, already has various agreements for these wood left-overs, and has an on-site shop. The catalogue is meant to serve as inspiration for the carpenters to create elements that can be sold in the shop, and includes such things as bike-racks, picnic tables, chicken coops, and outdoor modular furniture.

Opportunities

- low-tech reuse of a waste product from a significantly polluting industry (construction)

Constraints

- balance between mass production of a product (for selling in garden shop) and constraints of a reuse material (not always standardised and predictable)

2) **Café citoyen (participatory budget of NOH) :**

Technological, participatory, territorial NBS

The *Café citoyen* (citizens' café) project that was developed in the context of the participatory budget of NOH in 2020 and 2021, with the purpose of reconnecting sub-neighbourhoods by having a roaming monthly café on different themes relevant to people's everyday lives (e.g. parenting, gardening, etc.). The project has evolved to include the use of recording tools in order to bridge the disparity between people who are used to coming to these kinds of meetings and those who are less easily reached: bringing their voices into the debate by shortening the time/space distance using audio recording (micro-trottoir).

Opportunities

- creating connections between sub-neighbourhoods, regular convivial meetings between inhabitants, can be the basis of many other projects

Constraints

- difficult to avoid that always the same people join these meetings, how to reach the unusual suspects?

3) **Citizen radio shows hosted on Radio Panik**

Radio Panik, a local associative radio station located in St Josse (a municipality of the BCR, about 7km from NOH), is a strongly anchored platform for citizen dialogue. Amongst other programs, it hosts a number of neighbourhood radio shows on a regular basis. For example, Radio Marie Christine, a participatory citizen radio based in Laeken, broadcasts sound creations made beforehand by the inhabitants of the district. Their creations speak of the neighbourhood, its inhabitants, and bring them to meet and work together. These are presented live on the radio set, and broadcast directly on the outdoor speakers present in this commercial street (which normally play commercial music stations). More spontaneous radio shows moments can also be organised via this platform and is used as a modality by neighbourhood actors such as the AMO de NOH.

Opportunities

- Great platform for citizen dialogue, the radio format is more accessible also to people with low literacy, it can include many languages and dialects and forms of discussion that are more fluid
- Radio Panik already being used as a resource in the neighbourhood (and in others)
- Rapping studio in Lieu de Liens and Maison de Jeunes, so there is a recording practice in Versailles, which could be translated to other contents

Constraints

- Requires regular involvement on a volunteer basis to keep the format alive (especially if regularity is desired)
- Some skill barriers for management of the tool: needs some training (but good opportunity for lifelong learning)

3.5.4. Participatory NBS

Within URBiNAT, many participatory activities took place. For a description of these, please refer to Section 5.

Beyond URBiNAT

1) BNA-BBOT Brussels Sound Map

Participatory, technological NBS

Link: <http://www.bna-bbot.be/brusselsoundmap/>

URBiNAT layer: <http://www.bna-bbot.be/brusselsoundmap/theme-771/>

The BNA-BBOT Brussels Sound Map is a participatory sound map that intends to create a collective memory of place through sound. There is an URBiNAT layer where all the soundscapes collected during the ethnographic fieldwork feeding the local diagnostics were uploaded. The intention of the Brussels Task Force is to open this collection up to the neighbourhood, and encourage others to feed this layer, to create a sonic snapshot in time of the neighbourhood that can then serve as the basis for co-monitoring and co-evaluation, and as a common memory.

Opportunities

- anybody can upload onto the site, and use the sound recordings on the site; democratisation of database, open source
- possibility of gathering collective sonic memories of place, time-stamped, could do some monitoring/evaluation on basis of this over time

Constraints

- a bit of a niche concept, not well-known, needs some specific projects to feed into it (except for some contributors who are very proliferate)

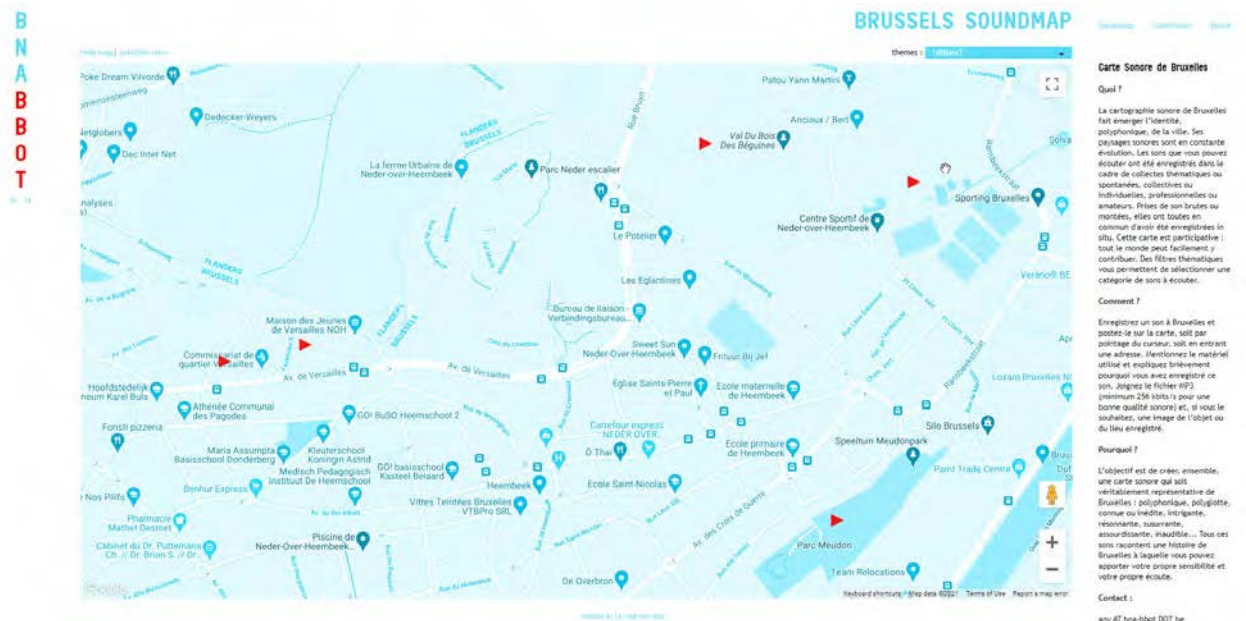


Figure 3. 74. Screenshot of the Brussels Sound Map, a project of BNA-BBOT, on which a layer has been added for soundscapes recorded in the context of URBiNAT

2) Ephemeral DIY urban infrastructure by the AMO de NOH

Participatory, technological, territorial NBS

In Versailles, the AMO de NOH regularly has construction activities with neighbourhood children during their street work (every worker has 2h/week of street presence (*travail de rue*)). In these moments, they make all sorts of temporary, DIY, playful installations: a gigantic *Puissance 4* game, a pallet-wood bench with rain protection, a swing, a hamac, spray-painted wall-coverings to fill the holes of the peeling outer layer of the social housing buildings. The essence of these moments is to build things *with* the children, not just for them, and to through this build up their self-confidence, provide a space for dialogue, and build a lasting relationship based on trust and shared experience which can support the children in times of crisis or need.

Joining the AMO in their street presence set up the groundwork for a joint project: the “mobile public living room” / ludomobile. Its aim is to have a mobile, bike-tractable unit that can house giant games and other “tools for conviviality” that can create spaces of dialogue between and with neighbours. It is currently under completion, in collaboration with the neighbourhood children who will put the finishing touches on its outer layer.

Opportunities

- possible to do “quick and dirty” interventions, test and prototype ideas without too much commitment to this idea; can go through various iterations of the same concept

Constraints

- structures not necessarily respected by other in the space, they do not always last very long (not just due to quality of materials)



Figure 3. 75. Picture of an ephemeral street furniture created by the AMO of NOH, taken from : <https://www.facebook.com/photo.php?fbid=1135631743584072&set=pb.100014117706694.-2207520000..&type=3>

3) Living en Ville

Participatory, territorial NBS

Address : Place Peter Benoit

Living en Ville is a summer festival that is led by the GC Nohva (Dutch-speaking cultural centre) and organised decentrally by a variety of associative actors. Originally, it was centred on the Place Peter Benoit, as this was in close proximity to the GC and remains a central point for the old centre of NOH. However, a discussion is currently ongoing about extending its field of action beyond this square and into the other sub-neighbourhoods of NOH. Its aim is to occupy public space during the summer months (May to September), in order to (re)create neighbourly conviviality in these spaces. One of the highlights of this festival is the multiple “balades brocantes” (second-hand sale walks), where the many streets of the neighbourhood are turned into a giant flea market for the space of a couple Sundays in the year.

Opportunities

- occupation of public space to recreate a habit of occupation and conviviality
- creating moments of “extra-ordinary” occupation can stimulate creative use of public space

Constraints

- logistically complicated to coordinate (and motivate) all the associations to co-create the program



Figure 3. 75. Picture of an activity in public space (Place Peter Benoit) in the context of the festival Living en Ville, taken from their Facebook page

4) **Hello Summer | Summer Pop: Versailles 2021**

Participatory NBS

The Hello Summer | Summer Pop festival is organised by the para-municipal organism Brussels Major Events, in partnership with local organisations. Its purpose is to organise decentralised local festivities in different neighbourhoods of the City of Brussels. In Versailles, this was an opportunity to showcase local talent and culture, answering specific desires of the community there, and to have a festive moment in months that can feel quite lonely for those who do not go on holiday abroad. It was also a moment for people from outside of the direct neighbourhood to come and visit this space, and to demystify it.

Opportunities

- bring visitors to these peripheral neighbourhoods for a festive moment: putting these places on the mental maps for people from outside

Constraints

- risk of inward orientation of the community during the festive moment, difficult to break the boundaries of the sub-neighbourhoods and get people from outside to feel welcomed in these unusual spaces



Figure 3. 76. Picture of the Hello Summer | Summer Pop in Versailles in 2021, taken from : <https://summerpop.hellosummer.be/wp-content/uploads/2021/07/summerpop-7.jpg>

3.5.5. Social and Solidarity economy

1) Saving unsold produce (*récup d'invendus NOH*)

SSE, participatory NBS

Address: Neighbourhood compost Den Bels, Rue du Pâturage 11-57, 1120 Bruxelles

The “master-composters” of NOH are also involved in an extensive collection of unsold produce from neighbourhood supermarkets and grocery stores. Together with a network of a good dozen of neighbours (predominantly women; functioning via a WhatsApp group), they collect and distribute food waste twice a week at the neighbourhood compost Den Bels. A number of families in situations of economic precarity have a supply of fruits and vegetables via this redistribution of produce that would otherwise have gone to the incinerator. There is no money involved, but a lot of time and personal resources are invested in this activity.

Opportunities

- reduction of waste to incinerator, raising awareness of this issue within local networks, composting of food waste

Constraints

- sorting of waste outside, combined with rainy Brussels weather, means there aren't always enough hands to do the sorting quickly



Figure 3. 77. Picture of the “waste” produce picked up from a neighbourhood shop and redistributed at the Den Bels neighbourhood compost, picture taken during a field visit by Laetitia Boon

2) **Les Petits Débrouillards:** remedial lessons in NOH

SSE NBS

In the local chapter of this organisation in NOH, remedial lessons in support for passing end-of-year exams can be paid for with a collective price (where more people participating make it cheaper), established by the organisation as a motivating factor for teenagers to get their friends to come with them, when they otherwise tend to be under-motivated, and to make it more accessible to those with a small budget.

Opportunities

- localised school support, attempting to develop an economic model that is not prohibitive and enables students to get help

Constraints

- more individualised remedial help not necessarily possible with this model

3) Cooking workshops “C’est nous les chef.fe.s”, organised by the Ferme urbaine and MC-NOH

SSE, participatory, territorial NBS

Address: 3 Place Saint Nicolas, 1120 NOH

The cooking workshops organised monthly by the *Ferme urbaine* at the cultural centre Maison de la Création de NOH, are an opportunity to meet, exchange and discover culinary practices, all with local and seasonal vegetables (usually straight from the farm!). A dozen or so residents get together, exchange ideas on the various practices of preserves-making, food processing and cooking. In covid times, the workshops went first online and then outdoors.

Opportunities

- fantastic way to build community through common practice: sharing culinary practices across cultures; learning other ways to prepare vegetables (especially those we are not used to using)
- moments of conviviality, community, and sorority that are precious to many of these women; they become moments to discuss important developments in their lives, to share concerns about parenting or relationships, how to feed themselves and their families in ‘better’ ways (with all the possible directions this can imply)
 - thanks to eating together, but also the ebbs and flows of groupings around certain tasks in the kitchen (like walking together)
- 1 euro cost is mostly symbolic, but does cover the cost of the extra materials necessary for certain recipes; remains accessible for all

Constraints

- requires a full free morning, and therefore not accessible to many working people
- gendered connotations mean that there are few men (usually none)

Picture



Figure 3. 78. Picture of pickled Jerusalem’s artichoke, used as promotional material for the *C’est nous les chef.fe.s* cooking workshops organised by the MC-NOH and the Ferme Urbaine, taken from : <http://www.maisondelacreation.org/Projets/C-est-nous-les-chef-f-es-434>

4) GASAPs of the Ferme urbaine

SSE, participatory, territorial NBS

The *Ferme urbaine*, described in 6.2, supplies 3 GASAPs (Groupe d'achats solidaires de l'agriculture paysanne / Buyers group in solidarity with peasant agriculture): one in NOH itself, one in Jette, and one in Schaerbeek (two neighbouring municipalities, within 5km radius of the farm). A GASAP operates on a horizontal basis, and implies the equal involvement of all “eaters”, who take turns managing the shifts for distribution of the veggie baskets (weekly during the productive season), opening the space, etc. The financial model is subscription based: a fixed price for a basket for the entire season, no matter the particular harvest of the week. They often operate using old-school mailing lists, without any particular person in charge. Members of the GASAP are also invited to participate in moments of collective working groups at the farm itself (e.g., picking potatoes when it is harvest season), and thus also have a hand in the vegetables they eat, and intimate knowledge of the place where the food they eat grows.

Opportunities

- federating a group of hyper-local “eaters”, recreating neighbourly connections through food (going back to roots of sociality)

Constraints

- long waiting lists, indicating too much demand for the capacity of the network and farm
- weekly veggie baskets not accessible to every life rhythm (being on the go, eating out, in between work and chores and social life) and constraints on availability (linked to work, family life, etc., not everyone can come every week at the same hour)
- subscription concept may be prohibitive or too novel at first for those not used to this organisation of their food purchases



Figure 3. 79. Picture of a collective working day of the GasNOH at the Ferme urbaine, taken from: <http://gasnoh.over-blog.com/>

5) Zinne : local currency

SSE NBS

The new alternative currency *Zinne* was officially launched in March 2019. It operates in the BCR and aims to support the local, circular, and sustainable economy. Its network of participating businesses is still quite small, but there is a growing citizen and political support for this initiative. It is part of more than a dozen local currencies in Belgium.

Opportunities

- Relocalising of economic exchanges and thus practices

Constraints

- not currently compatible with a large amount of consumption practices (e.g. fast fashion and electronics, convenience shopping, online shopping, etc.), leading to some reticence on behalf of consumers to buy it; more of a once-in-a-while present than an everyday part of life, even for the “bobos” who are the most obvious participants
- network of local businesses that accept the Zinne remains quite small, meaning the circulation of the money is not yet optimal
 - producers/transformers/distributors not yet targeted or part of the network, and so circulation of the money is further hampered, as businesses cannot then use the Zinne to buy stock elsewhere or pay for services



Figure 3. 80. Picture of the Zinne local currency, taken from: <https://www.bruxelles.be/sites/default/files/bxl/zinne2.PNG>

3.6. Baseline for the development of the healthy corridor

In this section, some key themes and challenges will be identified that are relevant for the future of the Living Lab in Brussels. These themes need to be aligned with other Directive Plans of the City of Brussels (such as the CQD Versailles and the PCDD), as well as other territorial actors (such as the Coordination Sociale).

In Neder-Over-Heembeek, it is important to note the context of **rapid urban, sociodemographic and socioeconomic transition**, implying a (feeling of) loss of old ways of being in place which challenges place-based identities. These ruptures also generate issues of mobility, and resistances to adaptations of the urban fabric via large-scale infrastructure projects (such as the tram project). Intercultural negotiations of neighbourly relations are challenging, as are intergenerational relations. Issues associated with youth, and the difficulty of cohabitation in public space, are exacerbated by the youth's economic under-occupation (linked to unemployment rates) and loss of hope(ful outlooks).

In addition, we note that green spaces are under pressure and are positioned in conflict with housing needs and policies. There are also tensions in the kinds of green spaces that are deemed acceptable and desirable, particularly in light of the transition from a more “rural” identity (with “wilder” nature) to a more “urban” identity (“cleaned up” and managed nature, often in the form of parks). Finally, the presence (or absence) of basic services and facilities, such as bank offices and post offices, and the economic vitality of the neighbourhood, are currently under tension.

From the Climate Action Plan of the City of Brussels, the following **potential work topics** were identified for Neder-Over-Heembeek, responding to urban heat island effects, flooding risks, and general transitioning towards circular and social and solidarity economies:

- Green and blue “meshing”
- Bio-waste recovery
- Urban agriculture

In terms of the **local needs and expectations of inhabitants and stakeholders**, we find that in **Versailles**, there is a need for improved housing quality, though this will be taken care of (in part) in the Plan Climat of the Logement Bruxellois and in the CQD Versailles, and for a reduction of police violence and tensions between youth and police, as well as greater access to community spaces for a variety of projects and sports. In **Val Maria**, it is important to deal with night-time insecurity and relational problems with neighbouring social housing (Versailles and Bruyn), to handle the connectivity to the outside (whilst preserving the quietness and the characteristics of a “garden city” (urban heritage)), and to support more activities for a diverse audience (and for children). In **Craetbos**, there are mobility issues linked to the Avenue Versailles (very fast driving at their level).

The **expectations** regarding the project are that URBiNAT can serve to amplify the CQD Versailles, that it can serve to promote the needs and interests of local inhabitants (who feel unheard by the City, or feel that things do not move fast enough), and that it will continue to articulate itself in

relation to other actors and stakeholders, as there is a fear that there will be a lot of overlap with other projects.

In terms of **community assets and urban capital**, there is a strong local associative network and basic cultural infrastructure, as well as a long history of community engagement, with a tight-knit core population (for the older inhabitants) that is active in arguing for improvements and in creating projects (many potential and actual local partners) (Ciapanoh, PV-GW, flemish-speaking community, Projets Versailles). There is a small but dynamic cultural network, where the local cultural centres are actively trying to bring other actors together and create a neighbourhood dynamic, and there are various opportunities for local artists to (re)present themselves in these spaces. The municipality has also been piloting new participatory tools, such as the neighbourhood council, which can serve as a baseline for new forms of governance and co-creation at a hyper-local level.

Neder-Over-Heembeek is not (yet) so densely built up as other parts of the City, with some spaces that can be rethought in order to better integrate the urban and social fabric, and many green spaces that can be preserved still, and perhaps some that can be created (via obsolete industrial or residential buildings). Though NOH is spatially isolated from the rest of the BCR, the border with Flanders opens up some possibilities of cross-regional interactions (in permaculture, it is often said that the border zones are the most productive), and there are some potential waterfront possibilities (Parc Balcon project with ZIR4).

Below, a repetition of the summary of key working points identified in Stage 2 of the local diagnostic on the basis of interactions with inhabitants of Neder-Over-Heembeek:

- Village identity / practices: transition of urban typology, young history of neighbourhood integrated into city
- Youth: reputations, actuality, precarity, police violence, boredom
- Elderly: isolation, loss of purpose, segregation, inadapted environment (everything is harder)
- Precarity of social housing inhabitants, contrast with comparatively good environment but poor housing (Versailles) and little mobility (Val Maria) ; socioeconomic context
- Greenery as a source of neighbourhood identification and wellbeing, of pride and everyday practice
- (Gendered) use of public space

In addition, it is important to specify some of the **limitations** of URBiNAT as a project that can address the issues presented in this diagnostic. Fundamentally, URBiNAT is intended to intervene in public space, or within the municipal field of action (buildings and land), and the social housing conditions in themselves are not within the field of possibility (in this case, the Climate Plan of the SLRB, which is itself a partnership with the municipality, addresses this issue of the quality of the housing stock to a certain extent). The CQD Versailles will deal with public space and facilities in the direct vicinity of the Versailles housing complex, and so URBiNAT can position itself in relation to these two spaces of intervention, bringing in the wider spatial dimension and relationship of Versailles to its exterior, including neighbourly relations with Val Maria and Craetbos, and address

fractures (e.g. with socio-spatially distinct sub-neighbourhoods such as the “quartier villas-piscine”, the schools, the old village centre. The articulation of URBiNAT with other projects in Neder-Over-Heembeek, and its potential for filling in gaps of action and in this way provide more coherence to the way in which urban planning is thought of in the neighbourhood, is a key working point.

This being considered, a number of **sites of potential intervention** have been reflected on in the context of the project. Sites that could be the spatialisation of the Healthy Corridor concept that will be developed in the co-creation process and future deliverables of URBiNAT. These sites thus far are only public spaces and have not taken into account the potential of buildings or public facilities such as were identified in the territorial mapping protocol.

- “Chemin du pendu” path
- Piste rouge (Versailles)
- Roi Albert / Donderberg urban island and path
- Path cutting the corner between Beyseghem/Donderberg
- Playground: Val Maria
- Playground: Craetbos
- Playground: Versailles
- Triangle of green space between Tour Japonaise street and Versailles Avenue
- Wasteland of the CPAS
- Den Bels Farm (Beyseghem farm)
- Streets for soft mobility and re-permeabilisation
- Flanders agricultural sites
- “Allée des moutons”
- Crossing on Roi Albert
- Crossing on Rue de Heembeek (Solarium: bas)
- Slabs in Versailles (e.g. next to Versailles Seniors and Maison de Jeunes)

Finally, below are a number of **projects that fit within the NBS typology** and that the task force in Brussels has been involved in since the start of the project period:

Table 3. 8. NBS projects in the Brussels Living Lab

	Territorial	Participatory	Social solidarity economy and	Technological
Participatory budget in NOH		Citizen café		
	Village Neder			
	Tiny Forest			

Green corridor areas of intervention	“Chemin du pendu”			
	Roi Albert/Donderberg island/path			
	Playground Versailles			
Brussels festivals		Nourrir Bruxelles		
	Living en Ville			
Subjective mapping	Mobile public living room / ludomobile			
				Sonic cartography / memory of the neighbourhood
Prototype projects	Collective working sessions with youth of Versailles and Val Maria at the <i>Ferme urbaine</i>			

3.7. Conclusion

By way of conclusion, a more analytical understanding can be presented of the types of interventions that are envisaged based on this diagnostic and the process that has fed into it. First, a focus on **connectivity** between fragmented spaces implies that focused interventions might increase the fluidity and interconnection between the sites identified in Section 7, leading potentially to territorial NBS proposals. Second, a focus on **conviviality** in public space, as a vehicle for social cohesion, and therefore creating spaces of potentiality (re/generative spaces), which may lead to SSE and participatory NBS proposals. Third and finally, **preserving** what is already deemed positive or worth preserving, and thus focusing on heritage, both cultural and environmental (e.g., agricultural), without staying stuck in or bound to an imagined or narrated history. Allowing ourselves to *not intervene*, to refuse to design interventions where these would diminish the dynamics already in place (both socially and ecologically), needs to seriously be considered.

In terms of the **methodology** for the next steps of the Living Lab, this diagnostic has shown that it is crucial to allow for **creative and common exploration**, for iterative project development, and for things to happen beyond what we can anticipate as the scope of the Living Lab. The URBiNAT task force, as an actor in the field, needs to focus on creating an **enabling environment**, in filling in the gaps between plans, between actors and projects, in order to foster a generative environment and for “things to happen” (becoming a tool for local self-development). This implies seeking out **synergies** with other plans in the field, spending time in discussion with other actors, accepting that sometimes a necessary action will be taken by other projects and does not need to enter within the field of URBiNAT. At the same time, it will be necessary to establish a clear scope of intervention for clearer communication to inhabitants (also in relation to other projects such as CQD), and perhaps spatialising the project in the months following the finalisation of this diagnostic is a good first step.

3.8. Annexes

3.8.1. Overview of NBS projects in Neder-Over-Heembeek

The following table is a non-exhaustive list of projects active in the neighbourhood of Neder-Over-Heembeek that can be considered nature-based solutions, according to the URBiNAT typology.

Table 3. 9. NBS projects already existing in NOH

Name of project	Street	Number	Actors involved	NBS (primary)	NBS (secondary)	Active project?	Link to VBX / URBiNAT	Description
Ephemeral DIY urban furniture	Avenue de Versailles		AMO de NOH	Participatory	Territorial	Yes	URBiNAT local partner	
Ateliers participatifs de réparation de vélos	Rue de Heembeek	240	AMO de NOH	Participatory		Yes	Subside ID 2021	These are participatory bicycle repair workshops. Every Wednesday from 3 to 5 pm, an AMO facilitator and two mechanics with the necessary equipment are present at one of the three agreed locations (alternating) to offer help with bicycle repair. The mechanics are young people from the neighbourhood who are interested in bicycle mechanics and who have received training in this area through CYCLO. The project encourages D.I.Y., repairing rather than buying new, and the use of bicycles for daily travel.
Saving unsold produce (récup d'invendus NOH)	Rue du Pâturage	11 au 57	Annemie and Hendrik Vasseurs (maîtres-composteurs trained by Worms asbl)	Participatory		Yes		
Lieu de Liens	Rue de Japonaise	la Tour	Coin des Cerises	Participatory	SSE	Yes		
Café citoyen			Coordination sociale de NOH	Participatory		In development	Budget participatif de NOH	The Café citoyen (citizens' café) project that was developed in the context of the participatory budget of NOH in 2020 and 2021, with the purpose of reconnecting sub-neighbourhoods by having a roaming monthly café on different themes relevant to people's everyday lives (e.g. parenting, gardening, etc.). The project has evolved to include the use of recording tools in order to bridge the disparity between people who are used to coming to these kinds of meetings and those who are less easily reached : bringing their voices into the debate by shortening the time/space distance using audio recording (micro-trottoir).
Récits sans frontières			AMO de NOH	Participatory		Yes	Lien via collab Urbo/SC I	Crossed stories between young people living in NOH and the MENA of the Fedasil centre of the military hospital
Atelier Versaillesbioty	Rue de Ransbeek	197	ASBL École des devoirs de Neder-Over-Heembeek	SSE		Yes	Subside ID	Workshops for the production of cosmetics / hygiene products / natural, economical and ecological home-made cleaning products and zero waste

			(Eddnoh)					
Atelier menuiserie des Pilifs	Trassersweg	347	ASBL La ferme Nos Pilifs	SSE		Yes		Reuse of wood from construction sites in their woodshop in order to create elements (including furniture) that can be sold in their pépinière. Called upon architecture students to develop a catalogue of elements they could create in-house
Love veLO	Trassersweg	347	ASBL La Ferme Nos Pilifs	SSE		Yes	Subside ID	A bicycle point is made available to the inhabitants of Brussels and to visitors. It consists of two recharging stations for bicycles, a foot pump and a totem with the necessary tools to carry out routine adjustments and minor repairs. There is no such infrastructure in the neighbourhood. Accessible at all hours.
GasNOH	Mariënborre	40A	Ferme urbaine de NOH	SSE	Participatory	Yes	None	One of 3 GASAPs that the Ferme urbaine supplies with their produce ; weekly basis
Les Petits Débrouillards : remedial lessons in NOH			Les Petits Débrouillards	SSE		Yes		In the local chapter of this organisation in NOH, remedial lessons in support for passing end-of-year exams can be paid for with a collective price (where more people participating make it cheaper), established by the organisation as a motivating factor for teenagers to get their friends to come with them, when they otherwise tend to be under-motivated, and to make it more accessible to those with a small budget.
Cooking workshops "C'est nous les chef.fe.s"	Place Saint Nicolas	3	MC-NOH ; Ferme urbaine de NOH	SSE		Yes ; monthly		The cooking workshops organised monthly by the Ferme urbaine at the cultural centre Maison de la Création de NOH, are an opportunity to meet, exchange and discover culinary practices, all with local and seasonal vegetables (usually straight from the farm!). A dozen or so residents get together, exchange ideas on the various practices of preserves-making, food processing and cooking. In covid times, the workshops went first online and then outdoors.
Zinne, local currency			Zinne asbl	SSE		Yes	Subsidised by VBX	The new alternative currency Zinne was officially launched in march 2019. It operates in the BCR and aims to support the local, circular, and sustainable economy. Its network of participating businesses is still quite small, but there is a growing citizen and political support for this initiative. It is part of more than a dozen local currencies in Belgium.
Chicken coop Craetbos	Clos du Craetbos	14	Association de fait Potager Collectif du Craetbos	SSE	Participatory; Territorial	Yes	Subside ID	Setting up a collective hen house which allows the residents to eliminate at least 20% of their organic waste, as chickens are known to be great recyclers, they eat vegetable peelings, eggshells etc.
Veggie garden Craetbos	Clos du Craetbos	14	Association de fait Potager Collectif du Craetbos	SSE	Participatory; Territorial	Yes		Collective garden in which inhabitants of Craetbos (and around) have individual plots.
Community kitchen @ Bruyn	Rue Bruyn	225	Maison de quartier Bruyn	SSE		??		Kitchen facility available for community projects.
BNA-BBOT Brussels Sound Map			BNA-BBOT	Technological	Participatory	Yes	URBiNAT has a dedicated layer	The BNA-BBOT Brussels Sound Map is a participatory sound map that intends to create a collective memory of place through sound. There is an URBiNAT layer where all the soundscapes collected during the ethnographic fieldwork feeding the

								local diagnostics were uploaded. The intention of the Brussels Task Force is to open this collection up to the neighbourhood, and encourage others to feed this layer, to create a sonic snapshot in time of the neighbourhood that can then serve as the basis for co-monitoring and co-evaluation, and as a common memory.
Waterways: from the waterfall to the pond, autonomous circuit	Avenue de Versailles	87	Centre pédagogique des Pagodes	Technological	Territorial	??	Subside ID	Continuation of the previous project (flower meadow, rainwater recovery system, insect hotel) with the addition of a rainwater cascade, a water reservoir, which could feed a small pond to be dug, decorated with semi/aquatic plants and fauna. A solar energy pump would feed the cascade. Practical didactic discoveries of the notion of upstream and downstream, the concept of runoff, solar energy, aquatic fauna and flora. Didactic panel developed by the partner 'Les Pilifs'.
Optimisation and valorisation of a sustainable and agroecological water management at the urban farm of the Début des haricots.	Mariënborre	40A	Début des Haricots ASBL	Technological	Territorial	In development	Subside ID 2021	As a Brussels micro-farm, a place for social and professional integration, training, awareness-raising and experimentation, we want to harmonise and optimise our use of water in order to make it an exemplary place in Brussels. We are planning three main lines of action in order to fulfil this mission in an agroecological and educational perspective: - improving our capacity to recover and store rainwater to increase our capacity for autonomy and resilience in vegetable production in the face of recurrent droughts - to dedicate space to biodiversity by creating an ecological pond in the lower part of our land - Strengthen awareness of the crucial role of water and the importance of sustainable practices in a micro-farm by investing in strong visual communication that is accessible to all types of audiences. To reinforce our coherence and the showcase of alternatives through a phyto-purification system for our grey water.
Neighbourhood composts : 10 in NOH			Annemie and Hendrik Vasseurs (maîtres-composteurs trained by Worms asbl)	Territorial	Participatory; SSE	Yes		Composts managed by master-composters and a team of local inhabitants.
Conversion of a conventional agricultural plot to agroecology and sustainable horticulture	Trassersweg	347	ASBL La Ferme Nos Pilifs	Territorial		Yes	Subside ID	Create a production area closely linked to natural ecosystem services in order to produce vegetables, fruit, aromatic plants, edible flowers, etc. on living soil. Various training courses for people with or without disabilities will be organised there. The aim of this initiative is to secure the employment of 14 people, 10 of whom are disabled, to strengthen the supply of local/organic products at affordable prices, and to enable anyone who wishes to do so to receive training in agroecology.
Versailles community compost	Rue Laskouter	7	ASBL Projets Versailles	Territorial		Yes	Subside ID	Construction of a compost for all the inhabitants of the neighbourhood. Informing the residents about the compost, courses, awareness-raising for children, visits to the compost by the homework schools and the children's

								house.
Petits Jardiniers en herbe	Rue Warandeveld	102B	Autour du monde ASBL	Territorial	SSE	??	Subside ID	It is an urban agriculture, outdoor education and sustainable food project with a dimension of revitalising the neighbourhood in terms of green space and quality of life. Garden is managed by the children.
Ferme urbaine de NOH	Mariënborre	40A	Début des Harictos ASBL	Territorial	SSE; Participatory	Yes	URBiNAT local partner	
Living en Ville	Place Peter Benoit		GC Nohva	Territorial	Participatory	Yes ; annual	URBiNAT plans to organise intervention in 2022	
J'a rose ma culture	Rue Bruyn	225	Maison de quartier Bruyn	Territorial	SSE	??	Subside ID	To create a collective vegetable garden with the inhabitants of Bruyn housing, to raise awareness and inform this public about a sustainable development approach based on the theme of seasonal fruit, vegetables and flowers, while encouraging contacts/social links between inhabitants (children from the school support system, elderly people, families, inhabitants of the neighbourhood).
A sustainable year at the Maison de Quartier Rossignol	Nachtegaalweg	18/20	Maison de quartier Rossignol	Territorial	SSE	??	Subside ID	Cycle of activities around different sustainable themes using resources directly in the vicinity of the MQ Rossignol (NOH). The vegetable garden of the Maison de Quartier will be a resource for raising awareness but also for harvesting. Sustainable menus will also be offered (seasonal soup, snacks, culinary workshops ...) with the support of external partners (NOS PILIFS, FERME URBAINE, products from the vegetable garden). Excursions and visits (markets, farms, collective vegetable gardens, etc.) will be offered to users. Finally, the MQ will continue to host the REPAIR CAFE one Sunday per month.
Promenade Verte - Groene Wandeling de NOH			Promenade Verte - Groene Wandeling ASBL	Territorial		Yes		Walking routes criss-crossing the neighbourhood, managed collectively by members of the association
Medieval route, witch's quest, Breathe with Brussels route	Trassersweg	420	Sortilège ASBL	Territorial		Yes	No link	
Urban forest - Bois des Béguines	Trassersweg	420	Ville de Bruxelles - UO Espaces Verts, UO Climat	Territorial		Yes	Carried by VBX	Acquisition of land parcels to preserve the wooded and marshland areas of this zone
Agroforestry in the Bois des Béguines	Trassersweg	420	Ville de Bruxelles - UO Espaces Verts, UO Climat	Territorial		In development	Carried by VBX	Acquisition of land parcel to develop a pilot project for agroforestry in the context of the VBX urban agriculture strategy
Tiny Forest @ pool of NOH	Rue du Solarium	18	Ville de Bruxelles; Good Planet	Territorial	Participatory	In development	Budget participatif de NOH	
Hello Summer Summer Pop : Versailles 2021	Avenue de Versailles		Brussels Major Events ; various local associations			Yes ; annual	BME = Paramunicipal agency	Living en Ville is a summer festival that is led by the GC Nohva (Dutch-speaking cultural centre) and organised decentrally by a variety of associative actors. Originally, it was centred on the Place Peter

						Benoit, as this was in close proximity to the GC and remains a central point for the old centre of NOH. However, a discussion is currently ongoing about extending its field of action beyond this square and into the other sub-neighbourhoods of NOH. Its aim is to occupy public space during the summer months (may to september), in order to (re)create neighbourly conviviality in these spaces. One of the highlights of this festival is the multiple "balades brocantes" (second-hand sale walks), where the many streets of the neighbourhood are turned into a giant flea market for the space of a couple sundays in the year.
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3.8.2. Overview of workshops conducted in the field

Table 3. 10. Overview of workshops conducted in the field

Date	Nom	Public	Partenaires	Contenu	LD2 Method	Status
11/12/2019	Workshop MdE	Enfants	Maison des Enfants		Photovoice	conducted
20/02/2020	Workshop MJ	Jeunes	Maison des Jeunes		Focus group	conducted
02/03/2020	Versailles Seniors	Elderly	Versailles Seniors		Focus group	conducted
28/01/2021	Théâtre MC	Enfants	Collectif 1984		Cultural mapping Action-theatre	conducted
17/02/2021	MdE pâte à modeler/poésie	Enfants	Maison des Enfants		Focus group	conducted
24/03/2021	VM chasse au trésor sonore	Enfants	VLM		Cultural mapping Focus group : sound	conducted
28/03/2021	Marche exploratoire (non-mixité)	Femmes	BRAVVO		Walkthrough	conducted
07/04/2021	WOW #1	Enfants	AMO de NOH		Walkthrough	conducted
13/04/2021	WOW #2	Enfants	AMO de NOH		Walkthrough	conducted
20/05/2021 27/05/2021	Balade femmes	Femmes	Lieu de liens	La vie dans le quartier ; utilisation des espaces publics ; relation au reste du quartier/la ville > focus généré et in/sécurité	Walkthrough	conducted
23/06/2021 : cancelled	Focus group jeunes	Jeunes	VLM/MJ?	Raconter son quartier via le son : focus pratiques/utilisation de l'espace public	Focus group	Cancelled : needs to be

							replanned if deemed useful
14, 15, 16 juillet	UrboNOH w/ AMO	Children	AMO de NOH	Création de mobilier urbain (partenariat PCS, AMO, Ferme urbaine, SCI Belgium)	Co-création NBS		conducted
mai-juin	Micro-trottoir	General	Radio Panik (pour technique si besoin)	Définir questions précises: filling knowledge gaps	Interview		conducted 1 time
fin-mai	Balade Seniors printemps	Elderly	Versailles Seniors	Mobilité dans le quartier / Sensations et perceptions du quartier / Découverte de nouveau lieux	Walkthrough		conception: partenaires contactés
au beau temps	Balade Ghislain	Elderly	Ghislain de Bongnie	L'histoire du quartier Avec des enfants pour un côté intergénérationnel? Enregistrer la balade	Walkthrough Interview		conception: partenaires contactés
mai-juin	Focus group/balade filles	Jeunes filles	Lieu de liens	La vie dans le quartier ; utilisation des espaces publics ; relation au reste du quartier/la ville > focus généré	Focus group Walkthrough		conception: partenaires contactés
mai-juin	Balade tracé HC	General	Bruxelles Participation : Conseil de quartier? Ou public plus précis Versailles/VM	Focus aménagement de l'espace public + mobilité	Walkthrough		conception
mai-juin	Focus group Craetbos	Craetbos	Association de fait Potager du Craetbos?	Focus vivre ensemble ?	Focus group		conception: partenaires contactés
mai-juin	Focus group other cultural groups	"Minorités" d'origines	Via Ardaps?	La vie dans le quartier ; utilisation des espaces publics ; relation au reste du quartier/la ville	Focus group		conception
juin	Atelier NL?	NL-talig > à Versailles /VM?	Living en Ville/GC Nohva?	La vie dans le quartier ; utilisation des espaces publics ; relation au reste du quartier/la ville	Cultural mapping Focus group		conception
juillet-août	Salon public mobile : création	Enfants	AMO de NOH	Co-création d'une NBS avec les enfants	Co-création NBS		planned
juin-septembre	Salon public mobile : mobilisation	General	Living en Ville et Hello Summer? Se calquer sur leur programme, même si URBINAT n'est pas dedans	Mobilité dans le quartier / Sensations et perceptions du quartier / Découverte de nouveau lieux	Ethnography Cultural mapping		conception

4. Høje-Taastrup

4.1. Introduction

In the URBiNAT project Høje-Taastrup will focus on the Gregersen Quarter. Gregersen is built in a classical, modernistic style typical of the Northern European tradition. The neighbourhood is located close to the centre of Høje Taastrup, only 600 metres from the train station. However, traffic arteries separate the neighbourhoods from the surrounding city on all four sides and there is a need to improve the cohesion between Gregersen and the surrounding areas.

The main challenge in Gregersen is that there are many residents outside the labour market, without or with little education, and many with low incomes. Although residents' chairpersons have been good at telling their story about people being happy to live in the neighbourhood, the socio-economic development of the neighbourhood remains a challenge.

A close collaboration with the citizens over many years has transformed some of the public spaces from the original concrete and asphalt into cityscapes with room for an active and healthy lifestyle. This tradition will be carried on in the work of transforming three new areas in Gregersen.

Høje-Taastrup Municipality is a follower city in the URBiNAT project. The municipality is sharing its urban regeneration experiences with other cities as well as learning best practices that will reinforce the implementation of the ongoing plans.

Within URBiNAT Høje-Taastrup wish to explore the likely facilities to be developed and sustained on the ground where a new Quarter House is to be built, a passage between the Gregersens Quarter and the station and the linkages to a park which will be developed in the coming years during the refurbishments of the area (see photo). The Municipality has a rich tradition of working with inclusive citizens groups, housing associations and public-private partnerships. This tradition will be carried on in the work of transforming the three new areas in Gregersen, along with applying new methods and knowledge about working with nature-based solutions.

The outcome Høje-Taastrup municipality expects from the URBiNAT project is to improve living conditions through solutions that can provide a feeling of community and safety, and at the same time enable a green and healthy lifestyle.

This report presents outcomes from the Local Diagnostic (stage 1 and 2) in Høje-Taastrup. It provides data from the municipality in total and more specifically about the Gregersen Quarter.

4.2. The city

4.2.1. Territorial description

Høje-Taastrup Municipality has about 51,000 inhabitants and lies at the western outskirts of Copenhagen. The municipality has a mixture of urban and rural areas with a highly diversified mixture of local as well as immigrant citizens. The Municipality has the local responsibility and authority, and competences for the city planning, the social housing, development of culture and leisure, and for schools and institutions.

There is good access to and from the municipality via motorways, regional trains, Intercity and S-trains. Approximately 51,000 citizens live in Høje-Taastrup, and the population is increasing. Several major urban development projects are underway, including Nærheden (in English, the Vicinity) in Hedehusene, where homes are being built for approx. 8000 people. The homes will vary, so you can both own or rent; there will be low-rise buildings, townhouses, and villas. In addition, the municipality is in the process of developing the area at Høje Taastrup Station and City2 in the form of housing, businesses, and a central park street (Wikipedia).



Figure 4. 1: Høje-Taastrup municipality

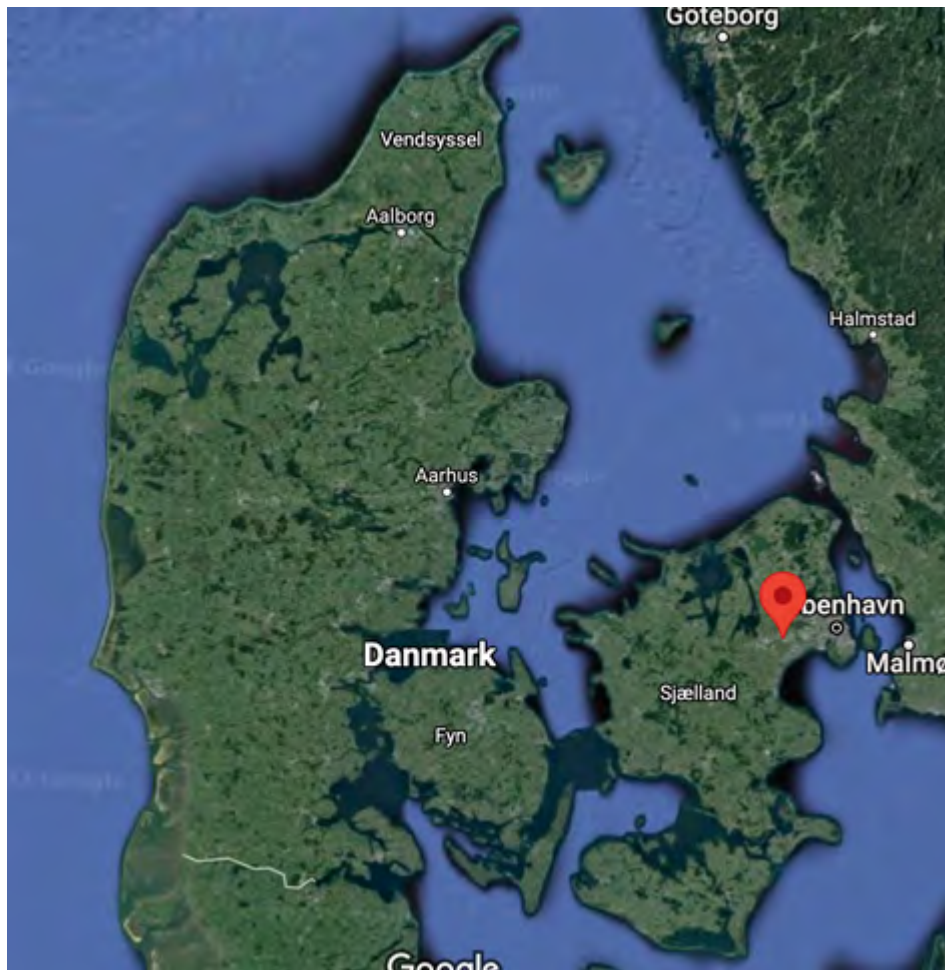


Figure 4. 2: Map over Denmark with location for Høje-Taastrup municipality

A short history

Taastrup grew up around Køgevejen Station (from 1847) and Nykro. The station town developed slowly, and it was not until around 1900 that shops, dairies, feed shops and grocery farms were opened. In 1894 a manufactory was founded, and water towers and gasworks supplied the city. Taastrup merged with the village Klovtofte, where there was a large brickwork production. In 1908 the first church was built in the town.

The station town was expanded, and the population increased from 2,317 in 1921 to 8,817 in 1960. In 1963, Taastrup was connected to Copenhagen by S-train, and from then on the urban development was concentrated around the train station. In the 1970's the housing company AKB started building social housing, and the Blåkildecetret was established around the village of Taastrup-Valby, where the farm Blaakildegård is located. Next to the water tower, a heating plant was established. The main street was still the centre of trade, but the city was part of the overall Høje-Taastrup Municipality's centre plans. The industry was located along Roskildevej and in older industrial buildings such as Strong Skjortefabrik, where Bambola from 1957 manufactured plastic toys.

Taastrup went through a character change after 1970. The town hall moved, and the main street shops suffered in the competition with the shopping centre City 2. Taastrup Station's new station building with shopping centre and parking spaces was established behind the main street in an

attempt to keep customers. Taastrup sought to be preserved as a local centre with i.e. local archive in Blaakildegaard and Taastrup Kulturcenter, inaugurated in 1970.



Figure 4. 3: Høje Taastrup station

In 1986 the new Høje Taastrup station was inaugurated. The station was built on open land. The intention was not just to build a station but to create a regional centre, so on the basis of a 1977 structure plan, an architectural competition was launched for both the station and the undeveloped area between City 2, inaugurated in 1972, and the Gadehave neighbourhood. In addition to serving as a regional transport hub, the station was also intended as a forward main railway station to relieve Copenhagen H. Thus, the main focus of economic activity in the municipality was shifted from the old town of Taastrup to the new and larger satellite city of Høje Taastrup.

Business, retail, and logistics

In recent years, Høje-Taastrup has seen a vast increase in both companies and jobs in the financial sector. Banks such as Danske Bank, Nordea and Nykredit have moved a substantial number of their employees to Høje-Taastrup.

The ALKA insurance company is located in Høje-Taastrup, together with IT companies such as ATEA and GlobalConnect which specialise in IT infrastructure.

This geographical location and infrastructure make it easy for people to commute, which provides a huge workforce of well-educated employees with the specialist skills generally required by the sector. Danske Bank and Nordea are large banks that have both recently moved large elements of

their workplaces to Høje-Taastrup, partly due to the advantageous opportunities offered by Høje-Taastrup, such as spacious physical locations and a well-functioning digital and physical infrastructure.

Retail is a strong and dynamic sector in Høje-Taastrup. A location in Høje-Taastrup allows B2B companies to have spacious warehouses at affordable prices, while companies selling to consumers enjoy how Høje-Taastrup, as a regional hub, attracts customers from all over the region. Large enterprises such as the multinational furniture retailer IKEA, the shopping centre CITY2, and the most recent arrival, the centralised Copenhagen Markets facility where wholesalers distribute and sell fruit, vegetables, and flowers to the whole of Denmark and Southern Sweden, are all present in Høje-Taastrup.



Figure 4. 4: Copenhagen Markets, City2 Mall

The geographical location and infrastructure provide obvious advantages for trade and transport businesses. Moreover, Høje-Taastrup is perceived as a commercial centre both nationally and internationally.

Høje-Taastrup is one of the most important regional transport hubs and the sector is strongly represented in the municipality. This is primarily due to the centralised geographical location and the infrastructural connections. The presence of a large and well-functioning transport sector is attractive to companies in trade and industry because they depend on this infrastructure.

The global transport company DSV has recently moved its headquarters to Høje-Taastrup. Høje-Taastrup Transport Centre (HTTC) is used by such companies as DSB, Post Denmark, Carlsberg, Banedanmark and Copenhagen Markets.

Transport Innovation Network (TINV) was initiated by the Danish Technological Institute (located in Høje-Taastrup) and other partners and has become a national network for the Danish transport sector. TINV brings together different partners from across the sector with the objective of creating synergy, identifying the demand for new technology, and instigating projects between members.



Figure 4. 5: The DSV Container terminal

Current municipal development

The municipality of Høje-Taastrup has launched a number of major urban development projects. Especially in the northern and central part of Høje Taastrup and Taastrup. Housing and businesses are currently being built in Høje-Taastrup C and buildings are being demolished in Taastrupgaard to make way for a new Children's and Culture Centre. There will be a new residential area at Selsmosen when Selsmoseskolen moves into the new Children's and Culture Centre. The regional leisure area is developing, including a new race hall and a regional centre for paddle tennis. In addition, a new Town Hall is being built in Høje Taastrup C, making way for a new residential area where the current Town Hall stands.

Finally, the bus service provider Movia, has advanced plans on a BRT line across the Capital Region (Ishøj - Lyngby). There could potentially be several stops in Høje Taastrup. These stops could eventually create new areas with potential for urban development and conversion.

Vulnerable areas

In 2016 the city council approved the creation of a political committee for "New focus on deprived neighbourhoods", in order to start working with the numerous issues that keep these areas in a negative feedback loop.

During the political discussion of the programme "New focus on deprived neighbourhoods", the city council decided to allocate funds for the preparation of new urban plans for the deprived neighbourhoods. This included a new vision plan for Gregersen titled "Knowledge City - Vision Plan for Gregersens Kvarter".

The vision for the Knowledge City was produced by COBE architects. The steering group for the area renewal project is the same as for the development of the vision plan for the knowledge city. The steering group consists of representatives from all the neighbourhood boards, as well as representatives from the City Council and institutions/associations in the area.

The steering committee continually discussed COBE's presentation, and COBE in turn incorporated the wishes of the steering group, considering different opinions in the final plan. In addition, there has been a dialogue with the departmental board of Gadehavegaard on the concrete possibilities for restructuring Gadehavegaard, where there's a positive attitude towards the plan.

The experience of deprived neighbourhoods in other cities shows that the challenges we see in the Gregersen consist of a larger complex of problems that need to be addressed as a whole. In this context, the vision plan is the tool to improve the physical environment of the neighbourhood. In the vision plan you can therefore read about the overall vision, the challenges of the neighbourhood and concrete projects to be realised.



Figure 4. 6: Gadehavegård - social housing in Gregersen

The vision plan for the Knowledge City will ensure that the many initiatives and plans in and around Gregersen are integrated into a whole. The plan presents a unifying approach to the neighbourhood and shows how connections and linkages, urban spaces, densification potential, functions, identity, entrances/arrivals, etc. can realise the vision in "New focus on deprived neighbourhoods". The plan points at the establishment of a new campus area that can tie existing educational institutions together with enterprises like DTI, to help improve the educational challenges of the neighbourhood.

The campus itself consists of the formal learning environments of the existing educational institutions but needs to be complemented by informal learning environments. Examples include the new urban spaces being developed in Kvartersparken, existing sports and recreation areas, classrooms and workshops, such as the bicycle workshop next to the Ole Rømer School.

4.2.1.1. Climate and Urban Environment

Denmark's climate is characterized by the country's location on the outskirts of the European continent close to major sea areas and in the westerly wind belt. This part of Europe enjoys the stable warm waters from the Gulf Stream. Our location results in cool summers with average temperatures around 16 ° C and not very cold winters with average temperatures around 0.5 ° C. Denmark is thus located in the temperate climate zone (Lex.dk, 2021)

Local differences

Within Denmark's area there are only small differences in temperatures from place to place. In the winter you will find the lowest temperatures in areas some distance from the sea. In summer, the highest average temperatures are found in South Zealand and in Lolland-Falster. The coastal areas have smaller differences in temperature between summer and winter due to the leveling effect of the sea.



Figure 4. 7: Annual precipitation in Denmark

The precipitation pattern also shows moderate differences from region to region. The Great Belt area receives the least annual precipitation with approx. 500 mm, while the southern parts of Central Jutland get the most with an annual rainfall of over 900 mm.

Climate change

Climate change can be considered through different time intervals. To even out random fluctuations in temperature and precipitation, the climate figures are calculated for a period of 30 years. In 1990 the 30-year normal period ended. When this period is compared with the previous period 1931-1960, differences can be observed. It has been shown that the average temperature of the year in Denmark has fallen by 0.2 ° C; it is especially the temperature drops in the period July to

September that have prevailed. The precipitation has increased by 46 mm on an annual basis; the summer months have become drier, while especially the autumn months have become more humid.

The number of hours of sunshine indicates the number of hours of direct radiation from the sun. In the last normal period, this figure has fallen from 1,729 to 1,670 hours per day. year. This decrease of almost five percent can i.e., be due to an increased number of aerosols (pollutant particles) in the air as well as a change in the prevailing wind directions, both with an increase in cloud cover as a result.

The prevailing wind directions have changed slightly from one normal period to the next. The frequency of southerly and south-westerly winds has increased compared to the previous higher frequency of westerly winds, so that the prevailing wind direction has turned approx. five degrees counter clockwise.

When the year 2020 is over, a new 30-year climate standard can be calculated for the period 1991-2020. It will show a rising temperature as well as more precipitation especially in the winter months.

4.2.1.2. Biophysical characterization

4.2.1.3. Land use/ land cover

Høje-Taastrup Municipality is one of the capital area's largest and greenest municipalities. About 2/3 of the municipality is forest, meadow, field and lakes. There are for example Vestskoven, Snubbekorskov, Sejbjerg Mose and Hakkemosen in addition to several protected nature areas such as Vasby Mose, Sengeløse Mose, Tyske Mose and Porsemosen. The bogs are so-called EU habitat areas to protect animal and plant life such as the pointed-nosed frog and the rare marsupial. The municipality is also home to Hedeland, which is a 15 square kilometre nature and leisure area with lakes, riding trails and mountain bike trails, a ski slope and also an amphitheatre with room for 3,500, where open-air opera is performed every year.

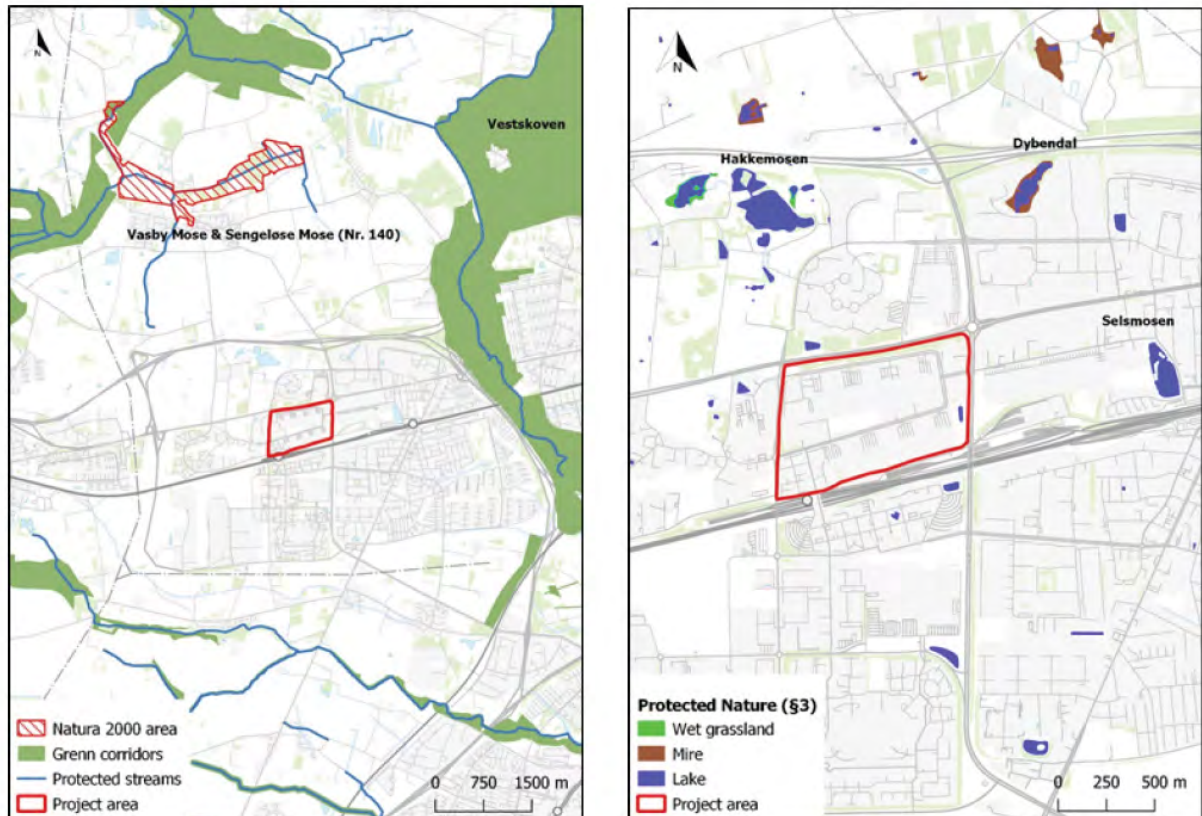


Figure 4. 8: Map over protected nature areas in Høje-Taastrup municipality. Gregersen is marked by a red square.

4.2.1.4. Transportation network (urban dynamics)

The transport and logistics sector is extremely well-represented in Høje-Taastrup, as one of Zealand's most important transport hubs. Høje-Taastrup Transport Center (HTTC) is an association of several major transport companies, such as Danske Fragtmænd, DB Schenker, Bane Danmark, Post Nordic, DSV, GLS and Carlsberg. HTTC also includes an intermodal freight terminal which allows for easy transfer from rail to lorry, and vice versa. This ensures the accessibility of goods and services from and to the region.

The Holbæk motorway (national route 21) running from east to west, and the Ring 4 motorway (national route O4) running from north to south, intersect at Høje-Taastrup, while all trains running to Copenhagen, Copenhagen Airport, Odense, Aarhus, and Germany stops at Høje-Taastrup station. This makes it easy to commute to Høje-Taastrup.

This also means that transportation times are very low, for example 15 minutes to Central Copenhagen, 30 minutes to Copenhagen Airport (CPH), one hour to Malmö (Sweden) and Odense, three hours to Aarhus, five hours to Hamburg (Germany) and six hours to Berlin (Germany) and Stockholm (Sweden).



Figure 4. 9: Transportation time

Høje-Taastrup Municipality is part of Greater Copenhagen, which promotes regional collaboration and economic growth through close dialogue with business and other key operators. Greater Copenhagen consists of 79 municipalities which span Eastern Denmark and Skåne in Southern Sweden.

The level of commuting into Høje-Taastrup has been increasing strongly in recent years. Currently, 25,000 people commute into Høje-Taastrup and 15,700 are outgoing commuters, while the numbers in 2011 were 21,000 and 15,500, respectively.

4.2.1.5. Green structure and Biodiversity

Høje-Taastrup Municipality has a Nature and Open Air Policy. Proximity to green and blue areas is of vital importance for the quality of life, health, and general well-being of citizens. Urban spaces act as social levers and should be planned where possible through co-creation and local involvement. The aim is to create ownership and a sense of belonging through communities of nature.

It can be difficult to find space for new green spaces in the dense city, so it is important to maintain existing green and blue structures and improve their quality. Urban development and regeneration projects should incorporate existing nature and new green spaces for meeting places and activities, community, and recreation.

In 2021 the Ministry of Environment of Denmark announced a competition where Danish municipalities had the opportunity to win the title of “Denmark's wildest municipality” along with 1 million DKK. The competition is a part of a campaign to bring more wild nature to Denmark. Høje-Taastrup are competing with 88 other municipalities to win the prize and have both started up and planned for several activities to improve the biodiversity in the municipality.

Høje-Taastrup offers guidance to citizens, housing associations and private businesses on how to make their green areas more attractive for plants and animals. The goal is to have established cooperation with 1000 house owners, 20 housing associations and 20 private businesses in 2025. In 2021 the City Council pointed out 18 green areas where wild nature will be prioritized. All these areas

are located close to urban areas. In 2021 and 2022 new vision plans will be made for each area in cooperation with citizens and the green council.

Sengeløse Grusgrav is an old gravel pit which is converted into a new green recreational area for all citizens. This area is today a place where nature is growing wild, and there is room for a wide range of species. There is also a small wood adapted to the nutrient poor soil that characterize this area. There is an ongoing registration of the natural values of the area, but the data are not ready to be included in this report.

In Solhøj Fæld, a project was conducted during spring 2021 to increase the number of toads. The result is new toad breeding in several of the water holes. In 2020 the municipality introduced its own mix of bee- and insect friendly flower bulbs which is adapted to the clay soil, which is the dominant soil type of the municipality.

4.2.1.6. Water management

Høje-Taastrup municipality has its own independent water supply company that supplies all citizens with water and manages rainwater runoff, including plans for 100-year incidents. The map below shows the water supply network of the municipality. The red square marks the study area.

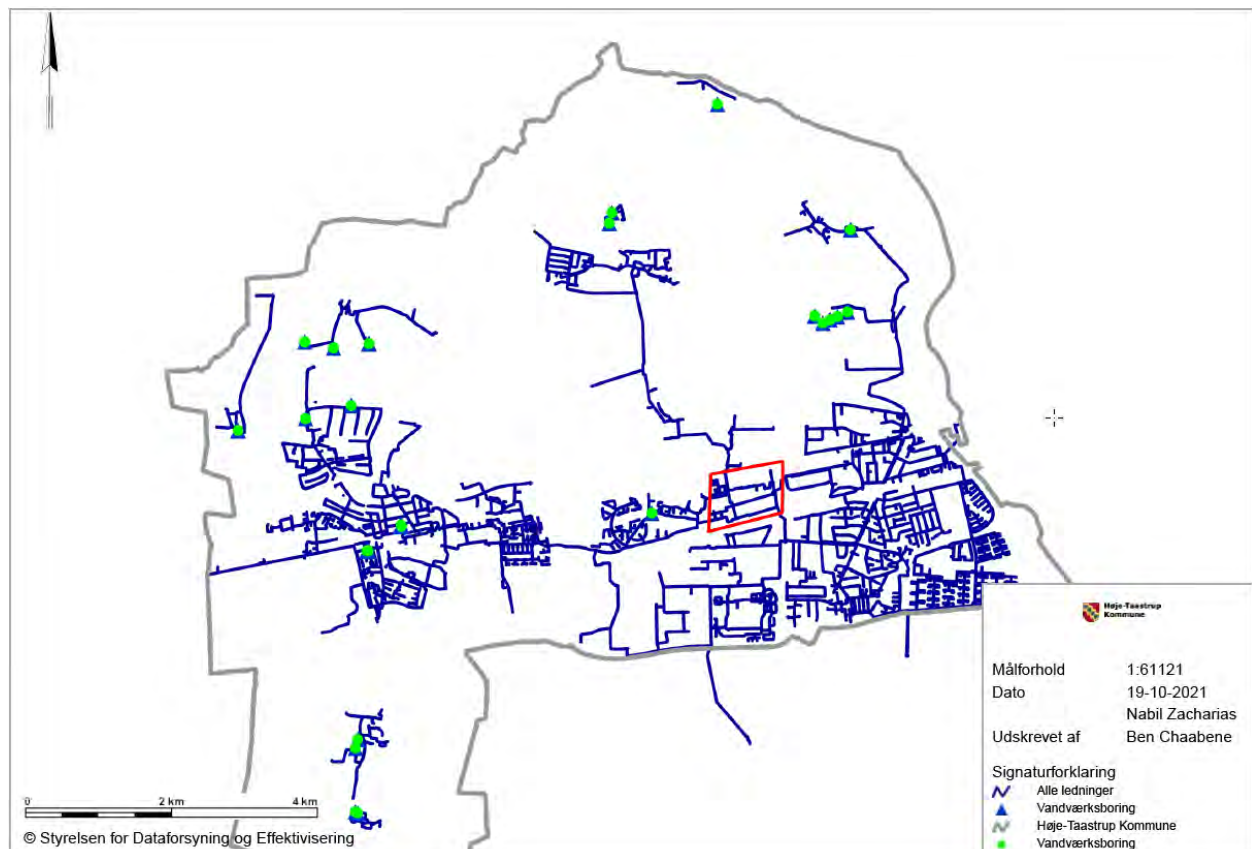


Figure 4. 10: Høje-Taastrup water supply network

4.2.1.7. Other

Noise from major roads and transportation networks is a major issue, not only in Høje Taastrup municipality but in many parts of greater Copenhagen. The map below shows noise from highways and railroads with Gregersen marked with a red square. More on noise in Gregersen in chapter 4.1.3.

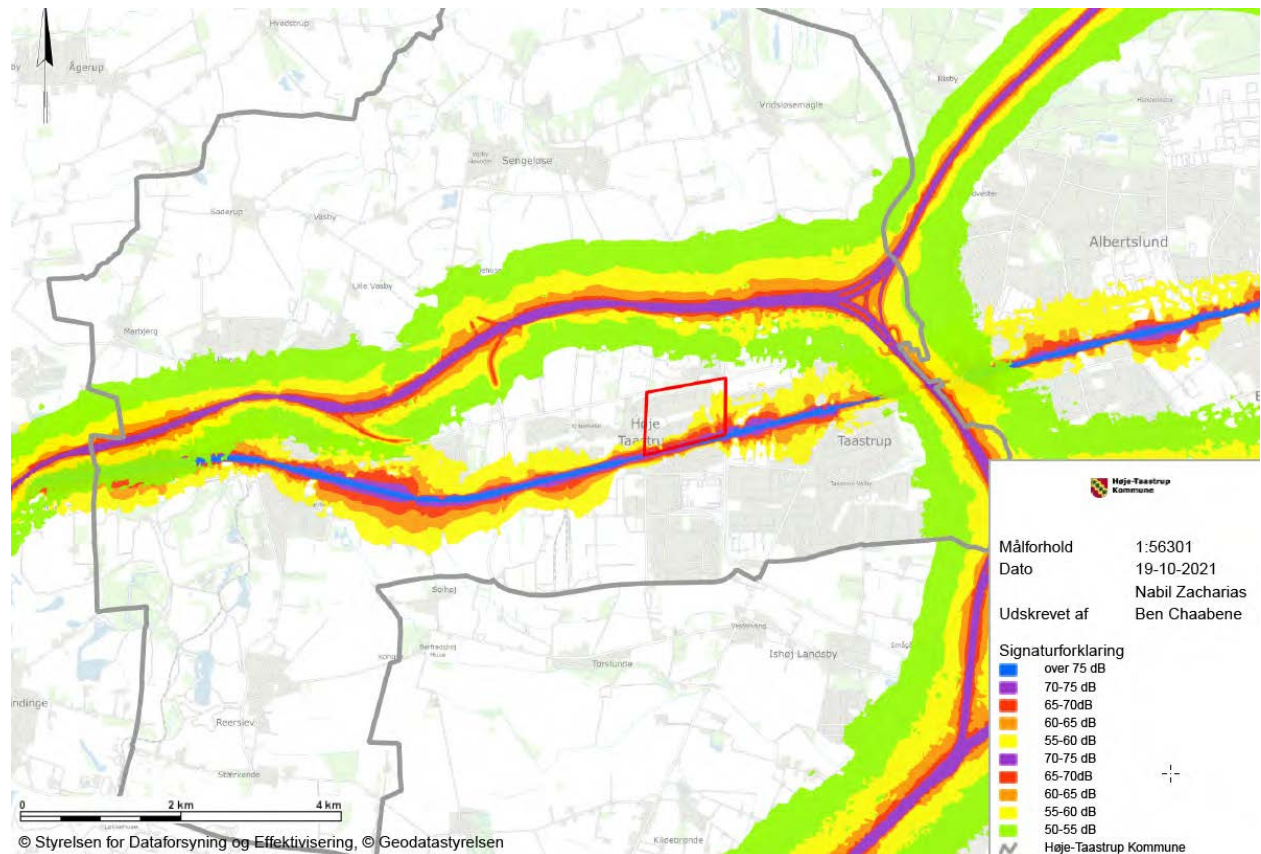


Figure 4. 11: Noise levels from highways and railroads. Gregersen marked with red square.

4.2.2. Social description

4.2.2.1. Demography

In 2020 Høje-Taastrup municipality accounted for a total of 50.759 citizens with an average of 647,3 individuals/km². The development in demography is of big importance for the economy and the planning of Høje-Taastrup municipality. Every year a new prognosis for the demography is made. The prognosis presents the expected development in demography over the next 12 years. The numbers presented here are the prognosis from 2020-2032 and the numbers can be seen in table 1 and figure 12 below.

Age group	Population 2020 (A)	Population 2032 (B)	Development population 2020-2032 (C)	Development population pct. 2020-2032 (D)	Percentage population 2020 (E)	Percentage population 2032 (F)
0-2	1720	2059	339	19,7	3,4	3,3
3-5	1833	2330	497	27,1	3,6	3,7
6-16	6820	7876	1056	15,5	13,4	12,7
17-24	4717	4350	-367	-7,8	9,3	7,0
25-64	26758	34423	7665	28,6	52,7	55,4
65-79	6990	7715	725	10,4	13,8	12,4
80+	1921	3417	1469	77,9	3,8	5,5
Sum	50759	62170	11411	22,5	100	100

Table 1: Population divided into age groups. Prognosis for 2020-2032

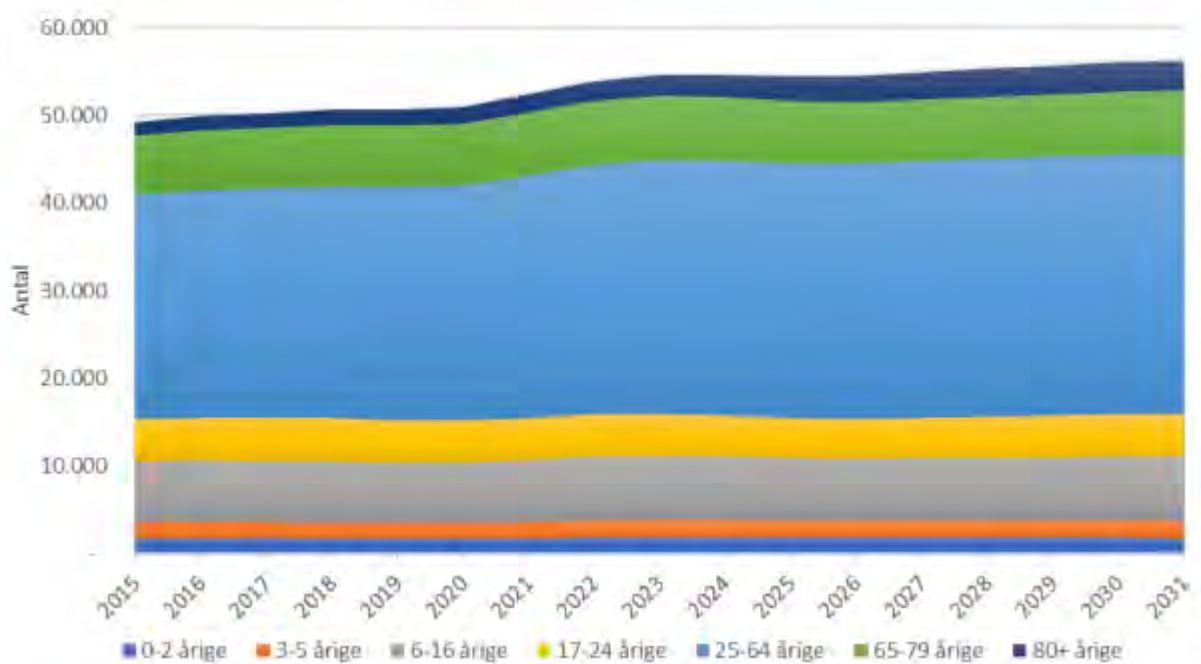


Figure 4. 12: Development for age groups 2015-2031

The population of Høje-Taastrup is currently increasing and is expected to increase from 50.759 to 62.170 citizens in the period 2020-2032. This is a 22,5 % increase in population and can be seen in connection to new housing constructions. A large part of the new dwellings are built early in the period, and therefore the increase in population is expected to slightly slow down towards 2032. The prognosis shows that all demographic groups will increase over this period, except from youth aged 17-24.

Especially the number of working-age citizens is expected to increase along with the new housing constructions. It is expected that in 2032 this demographic group will be an essential part of the population and contribute to a decreasing breadwinner fraction. This means that the share of working citizens will even out the share of non-working citizens (children, seniors etc.)

Numbers from Statistics Denmark shows that the number of men and women in Høje-Taastrup is evenly distributed. Table 2 shows the development in population distributed in women and men

from 2019 to 2020. The numbers are quite even and cannot tell anything specific about the development related to gender.

Women	2019	2020	Men	2019	2020
Births	285	297	Births	302	305
Deaths	209	200	Deaths	198	212
Birth surplus	76	97	Birth surplus	104	93
Moved to HTK	1719	2269	Moved to HTK	2052	2384
Moved from HTK	1816	1946	Moved from HTK	2082	2159
Net moved to	-97	323	Net moved to	-30	225
Net moved from	23	101	Net moved from	-14	101
Corrections	-5	17	Corrections	16	13
Population Growth	-3	538	Population Growth	76	432

Table 2: development in population distributed in women and men from 2019 to 2020 (Statistics Denmark)

In 2019, 585 new citizens residing in Høje-Taastrup Municipality were born, while 405 citizens died in the municipality. In total, a birth surplus of 180 persons, which is the highest level since 2016 (Statistics Denmark).

The number of births increased from 535 in 2018 to 585 in 2019, corresponding to an increase of 50 persons. The increase is seen after a period of decreasing births. Similarly, the number of deaths has decreased from 426 in 2018 to 405 in 2019, representing a decrease of 21 persons. The changes together contribute to the highest birth surplus in the period (Statistics Denmark).

Aldersinterval	2016	2017	2018	2019
15-19 år	2,1	0,7	1,3	0,7
20-24 år	40,5	39,2	38,2	34,3
25-29 år	135,4	114,2	105,7	119,9
30-34 år	111,4	125,8	114,2	136,2
35-39 år	64,2	63,1	62,5	52,8
40-44 år	10,1	10,9	10,2	16,6
45-49 år	0	1,1	1,1	1,6
Gnst. Antal fødte pr. kvinde i den fertile alder	1,82	1,78	1,67	1,81

Table 3: Birth rate per age group 2016-2019 (Statistics Denmark)

In the period 2016-19, the birth rate has been highest for women aged 25-29 and 30-34, and in the same period, the birth rate has been lowest among the youngest in the 15-19 age range. Since 2017, the birth rate has been highest for 30-34-year-olds, whereas previously it was 25-29 year olds who had the highest birth rate.

In 2019, the average fertility rate in the municipality of Høje-Taastrup was 1.81 children per woman of childbearing age 15-49, while in 2018 it was 1.67 children per woman. The average fertility rate is increased over the period. In comparison, the total fertility rate at national level was 1.73 children per woman in 2018, decreasing to 1.70 in 2019. The birth rate in the municipality of Høje-Taastrup was above the national average until 2017. In 2018 it was below, while in 2019 it is again above the national average.

Education/Literacy:

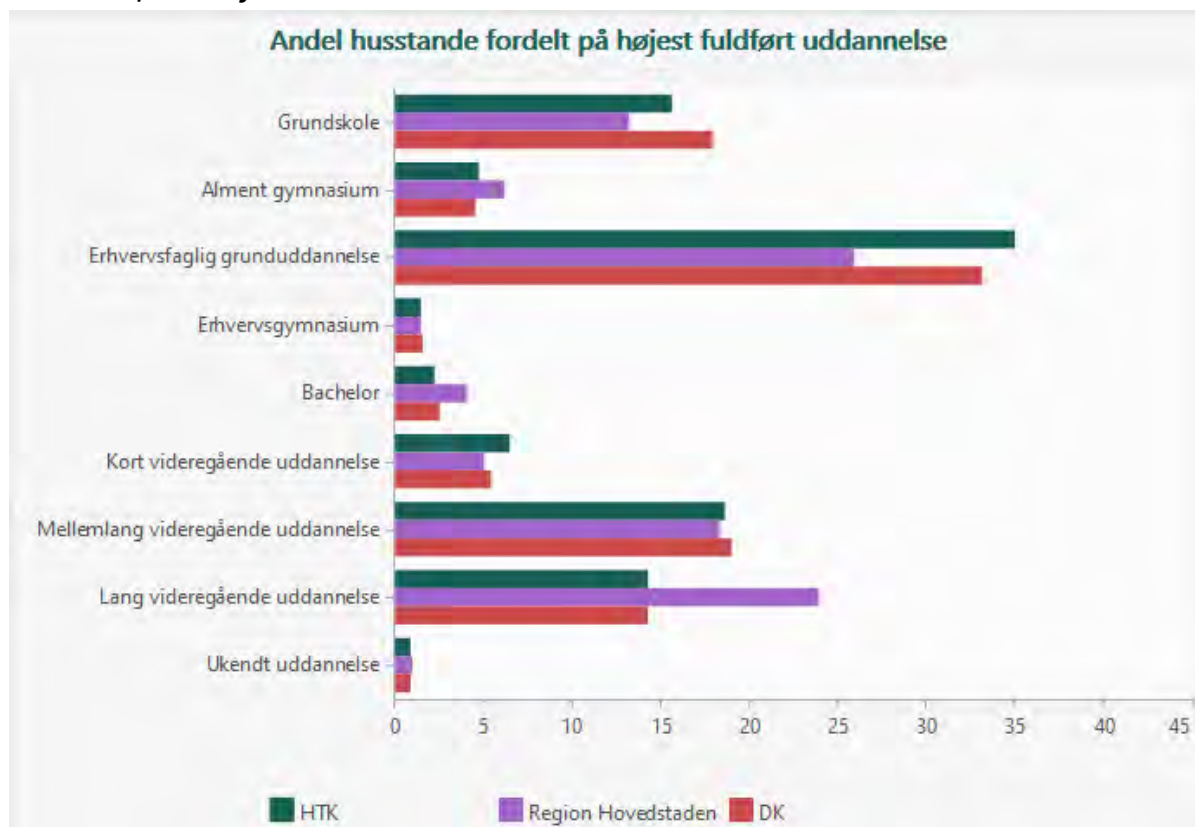


Figure 4. 13: Highest completed education for households in Høje-Taastrup, The Capital Region and Denmark

Figure 4. 14 gives an overview of the highest level of completed education for households in Høje-Taastrup (green) compared to the whole capital region (purple) and Denmark (red). The level of education starts from primary school (top) and goes to a long higher education, which means a master's degree or longer.

The figure shows that Høje-Taastrup mainly follows the average for the region and the country, with a high level in education. Høje-Taastrup has a slightly larger share of citizens with basic vocational education than the national average, and almost 10% higher than the average for the region. The capital region scores above the national average in the share of citizens with long higher education, as expected in a capital area. Høje-Taastrup lays on the national average for citizens with long higher education, and a bit over the region for citizens with medium high education.

Housing conditions:

The municipality's housing construction forecast consists of the construction of new dwellings as well as demolitions and other significant in the municipality's vulnerable housing areas, because of the government's parallel society proposal. Over the whole forecast period from 2020 to 2032, the housing forecast includes 6,114 net new dwellings -1,574 more dwellings than in last year's forecast.

Migration rate and migration graphs:

The municipality of Høje-Taastrup has a relatively large share of immigrants and descendants, and the number is increasing. From 2008 to 2018, the number of immigrants and descendants in the

municipality of Høje-Taastrup increased from 9,000 to 15,000. Today, the share of immigrants and descendants in the municipality of Høje-Taastrup is 29.5%, compared to 13.6% nationwide (Statistics Denmark).

This is not because the municipality of Høje-Taastrup receives refugees. Høje-Taastrup Municipality has not received refugees for many years, but due to family reunification the municipality has about 135 citizens under their integration programme. The immigration to Høje-Taastrup is mainly due to the fact that they have been attracted as labour.

In the 1970s, immigrants came mainly from Turkey to work in industry. Today, immigrants come mainly from Eastern European countries, e.g., Poland, Bulgaria and Romania, and Asian countries, e.g., Pakistan, India and Nepal, see table 15 of country of origin for 30 largest groups.

Today's immigrants are often educated and generally do quite well in the labour market. But we know very little about their integration in general. In the 1970s, there was no integration effort for Turkish guest workers, because it was expected that they would go home when there was no more work. This was proved wrong as the majority wanted to stay. The municipality does not want to repeat the history from the 1970s and works hard to integrate their citizens. Refugees and family members are offered an integration programme consisting of Danish language training and employment-oriented offers.

Table 4 shows what nations immigrants came from in 2009 and 2019. The highest increase can be seen in immigrants from Pakistan, Poland, Bulgaria, and Romania.

	2009	2019
Tyrkiet	3552	4220
Pakistan	967	1717
Polen	343	896
Irak	536	755
Bulgarien	29	598
Rumænien	52	508
Afghanistan	256	463
Indien	102	429
Libanon	357	400
Iran	270	311
Nepal	16	306
Marokko	212	286
Kina	116	225
Filippineme	116	205
Vietnam	221	205
Litauen	33	203
Jugoslavien	176	191
Makedonien	71	151
Tyskland	163	147
Bosnien-Hercegovina	134	145
Somalia	54	139
Storbritannien	102	134
Thailand	93	132
Ghana	69	128
Sverige	110	126
Syrien	79	122
Rusland	65	86
USA	47	85
Bangladesh	13	85
Norge	89	77

Table 4: Country of origin for 30 largest groups of immigrants

The share of immigrants and descendants is particularly high for children of institutional and school age, which affects the integration task in day-care centres and schools. Approximately 30% of Høje-Taastrup municipality's children of institutional and school age are immigrants and descendants, and if we include children of descendants, they make up 45% of 0–4-year-old children in the municipality.

At the same time, children of immigrants and descendants are not equally distributed between day-care centres and schools. This means that some institutions face a major integration task and social challenges (Statistics Denmark, 2019).

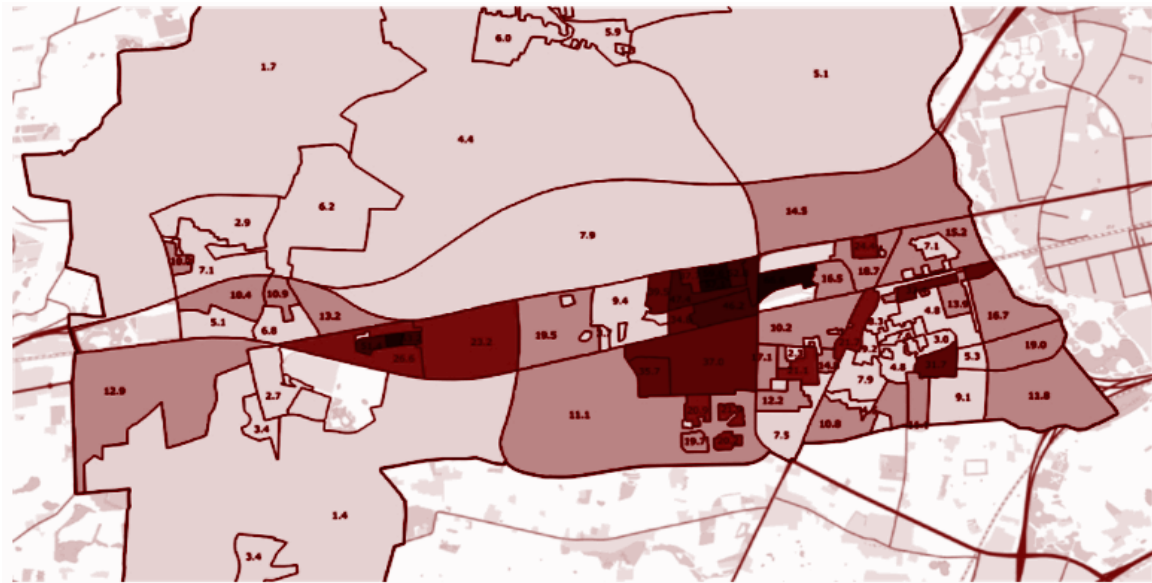


Figure 4. 14: Share of immigrants and descendants from non-Western countries by residential area

The settlement pattern challenges the cohesion of the municipality. Generally, in Denmark, half of all people with a non-western background live in social housing, compared to only 14% of the population of Danish origin. In addition, there is a high concentration of residents with non-western backgrounds in many social housing areas.

Among immigrants and descendants with a non-Western background living in social housing, 16% live in a social housing area where at least one in two residents has a non-Western background. And 49% live in general housing areas where between one in four and one in two residents have a non-Western background (Ministry of Economic Affairs and the Interior, 2019).

Family description:

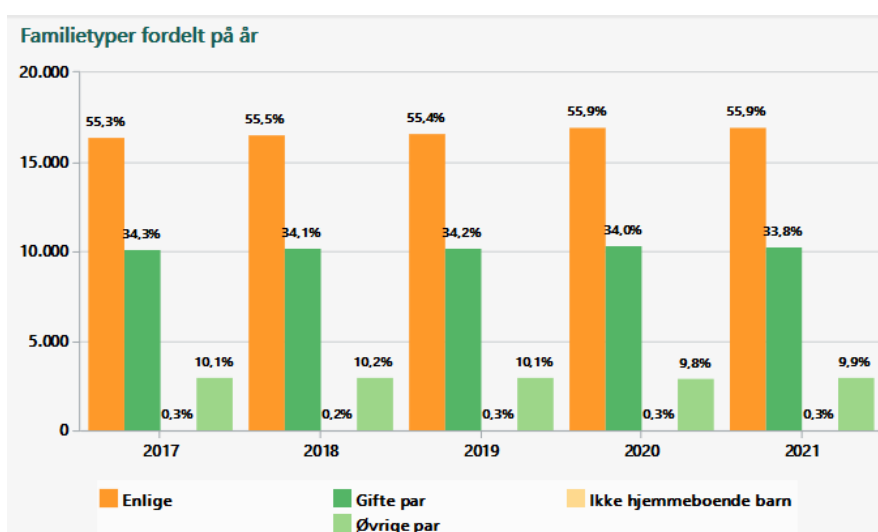


Figure 4. 15: Family types by year

Figure 4. 15 shows the development in family compositions from 2017-2021. The numbers are quite stable over this period, only with a small increase in singles and an even smaller decrease in married couples. There is a high share of singles

(orange) and more married couples (green) than non-married couples (light green) living together. This follows the tendency of more single households.

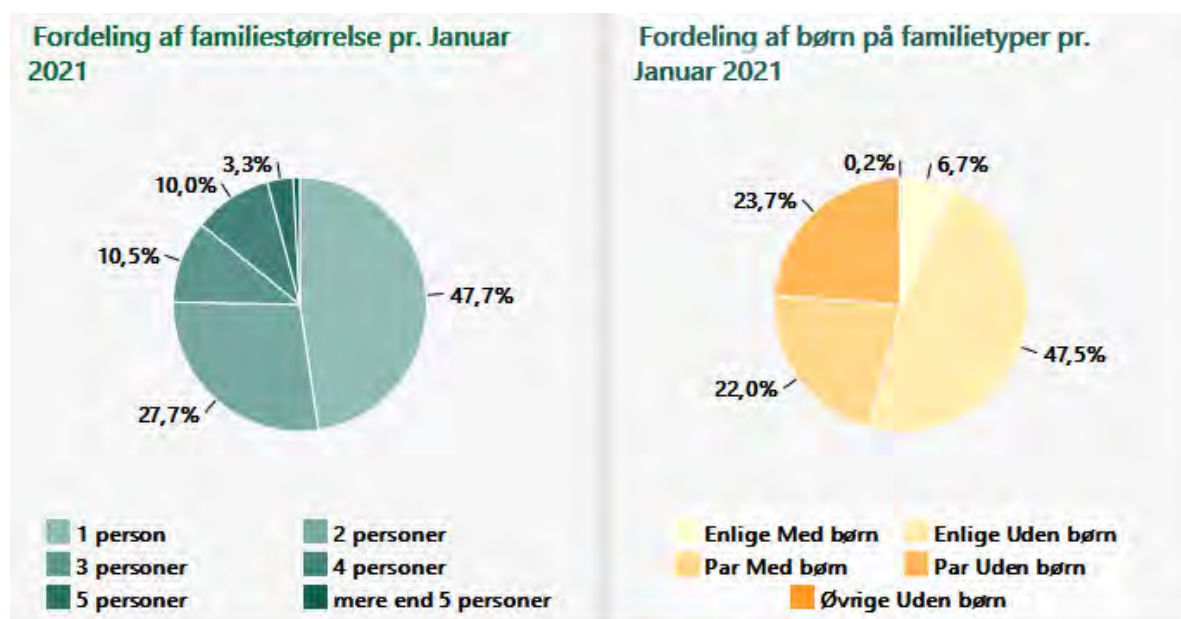


Figure 4. 16: households' compositions in Høje-Taastrup in 2021

Figure 4. 16 gives an overview of the households' compositions in Høje-Taastrup in 2021. There is a fair share of single households (47,7%), but only few singles with children (0,2%). There is a small share of families with 5 or more members. Couples with children make up 22% in Høje-Taastrup.

4.2.2.2. Participation

The data on participation comes from various sources and is not limited to voting on election day. There is also data on membership in associations and general data on trust in institutions.

The voting rates at local municipal elections are quite constant at around **65 %**. The next municipal election is on the 16th of November 2021. Five of the 21 members of the city council represent ethnic minorities in the municipality which is relatively close to the 30 % of the population that ethnic minorities make up.

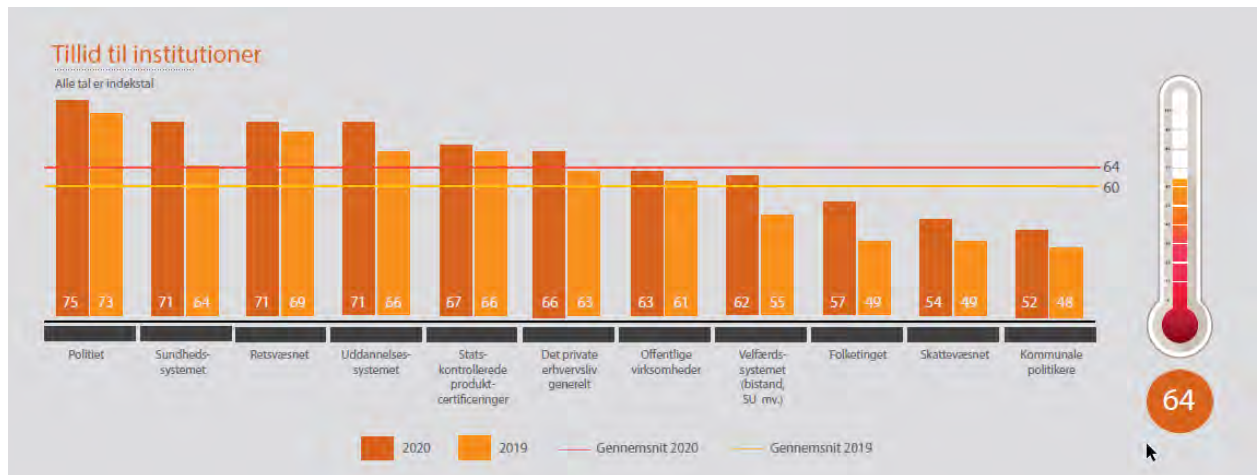


Figure 4. 17: PwC trust barometerer 2020

Trust in local public institutions is generally high in Denmark. Figure 17 (PwC: Tillidsbarometeret 2020) shows that the Danes have the highest trust in the police and the health care system. The lowest trust is with the tax system and local politicians. Overall trust in public institutions is quite high at 64 %.

Høje-Taastrup municipality is working strategically to increase the membership in local sports and leisure associations. There are currently 16.871 active members in various associations. Høje Taastrup municipality has a political goal of reaching another 5000 members under the age of 25 and a further 2250 members over 25 years old, reaching a total of 24.000 by the end of the decade.

		Pointfordeling					16871
		0-12 år	13-18 år	19-24 år	25-59 år	60+ år	
		2	3	1	0	0	
		Antal deltagere Pr. aldersgruppe					
Forenings	Forening / Aktivitet	0-12 år	13-18 år	19-24 år	25-59 år	60+ år	< 25 år i alt
	Samlet antal medlemmer	4595	1624	819	5259	4574	7038 16871

Table 4.5: participants per age group 2020

4.2.3 Economic description

4.2.3.1. Income and poverty

Income is one of the main variables that Høje Taastrup Municipality works with to reach the goal of a more equal city. It is also one of five main factors in deciding which Danish urban areas are designated parallel societies by the government.

År	Danmark	Region Hovedstaden	HTK	Valgt niveau
Total	544.760	599.372	569.168	461.514
2016	521.715	566.720	537.520	426.510
2017	538.963	592.855	554.497	445.560
2018	538.324	590.462	556.620	437.892
2019	554.454	613.892	591.546	488.578
2020	570.345	632.929	605.655	509.028

Table 4. 6: Average family income - comparing Denmark, the capital region, the municipality and Gregersen

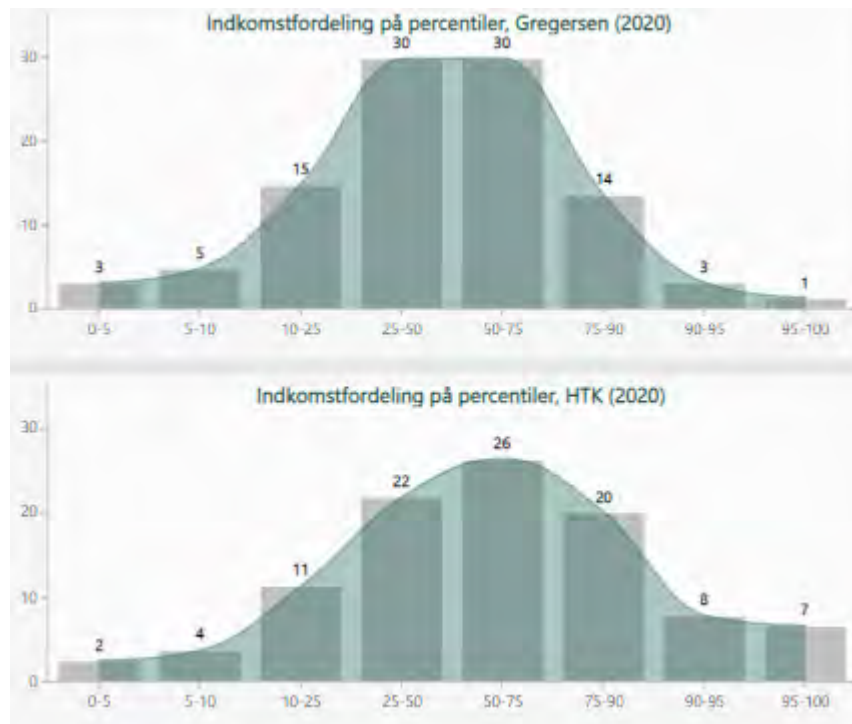


Figure 4. 18: Income distribution - Gregersen on top and the municipality below

Two different ways of illustrating the income disparities between Gregersen and the municipality.



Figure 4.19: Evolution in income distribution - study area in red and municipality in green

Ownership of durable assets (e.g., rate of owners of their residence, rate of renters, shared accommodation, free accommodation).

4.2.3.2. Employment

There are significant differences in the employment patterns of citizens from the study area and those from the rest of the municipality.

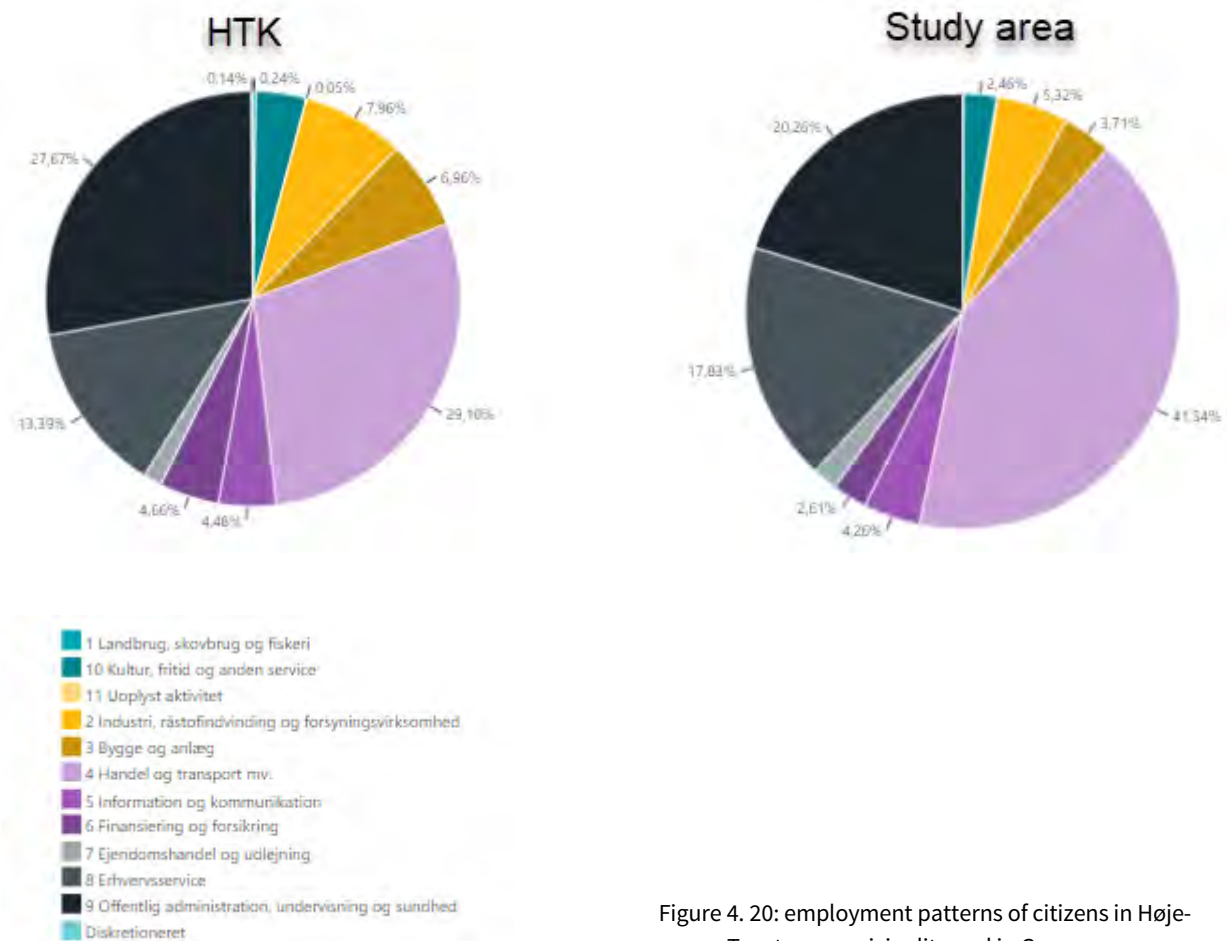


Figure 4. 20: employment patterns of citizens in Høj-Tastrup municipality and in Gregersen

The two pivots illustrate that people from within Gregersen have a much higher tendency to take jobs in trade and transport (bright purple). Meanwhile, citizens from the rest of Høj-Tastrup are employed more evenly throughout the sectors of the labour market.

4.3. Parishes/quarters levels

4.3.1. Territorial description

Høje-Taastrup Municipality has, amongst others, the local responsibility and authority for the city planning, social housing, development of culture and leisure, and for schools and institutions. The work with social housing in Høje-Taastrup is mainly divided in three locations which are regarded as deprived or 'ghettos' according to official Danish government classification. These include Gadehavegård, Taastrupgaard, and Charlotteskvarteret. The Municipality is in the process of regenerating these three districts.



Figure 4. 21: Overview of the neighbourhood

Since the municipality has a long history of deprived neighbourhoods, the City Council has deemed it necessary to find sustainable and permanent solutions for the structural problems associated with these areas. Thus, the municipality has developed a citywide strategy for dealing with issues concerning deprived areas. The plan focuses on five main themes: Urban restructuring, Reformation from housing area to neighbourhoods, A proactive housing policy, Holistic family planning programs and Priority programs for schools and institutions.



Figure 4. 22: Physical context of Gregersen neighbourhood

4.3.1.1. Transportation network and services

As mentioned in chapter 3, Høje Taastrup is very well connected with highways, roads, and railroads. The study area is connected by Høje Taastrup station with the rest of the capital region but inside the study area only one bus service is available.

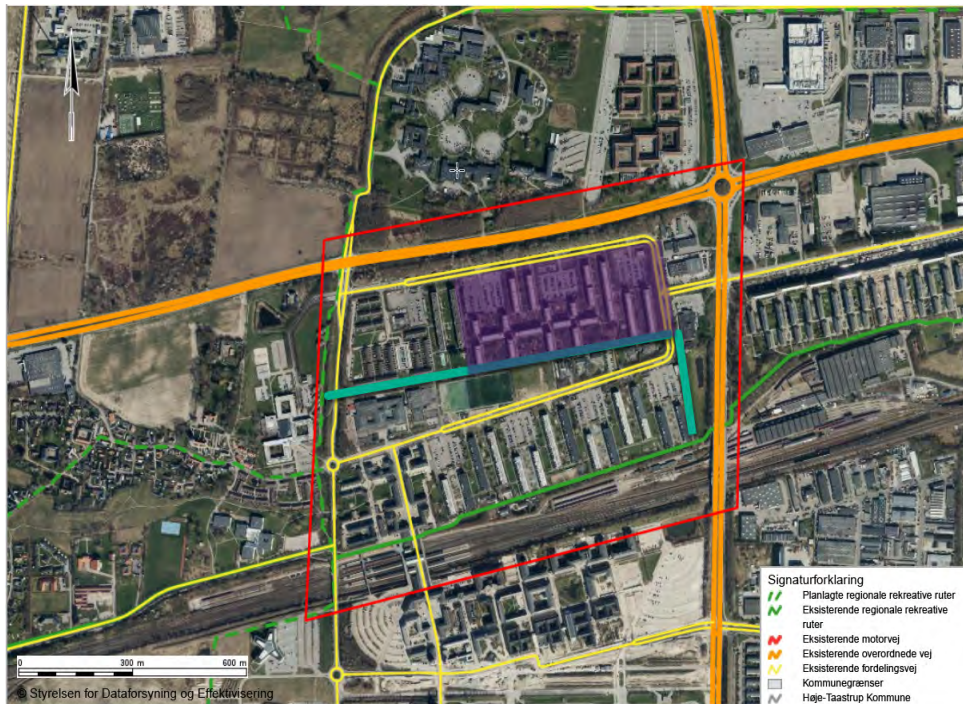


Figure 23: roads, bike paths and walking paths

As the map above shows, there are roads, bike paths and walking paths. However, it is an example of 1960s modernist city with car infrastructure (yellow and orange) being the most dominant. Bike and pedestrian paths are marked with green and the social housing area of Gadehavegård is marked with a purple square.

4.3.1.2. Green Infrastructure and Biodiversity



Figure 4. 26: Vegetation map

4.3.1.3. Local Master Plans

Over the last couple of decades Høje-Taastrup municipality has developed a tradition for strategic planning and holistic urban development that reflects the development of the science of urban development in Denmark in general. In the Gregersen neighbourhood this has been expressed in the production of quite a few tools, strategies and actual urban projects.

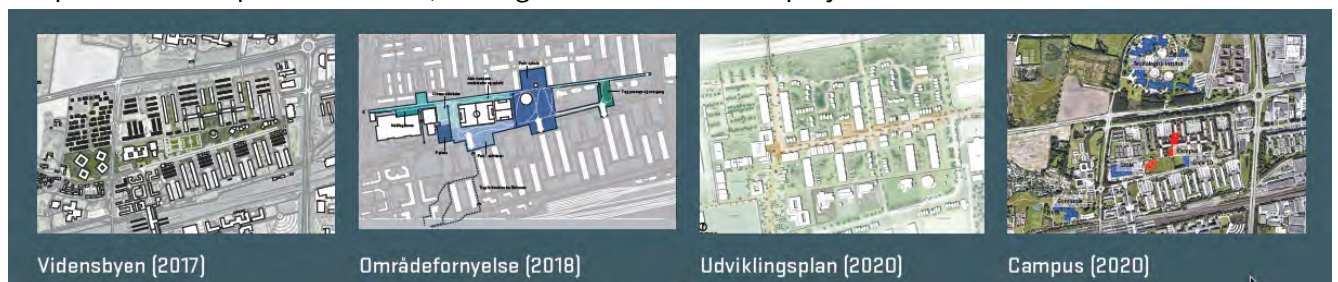


Figure 4. 27: Compilation of master plans for housing area Gadehavegård and the Gregersen neighbourhood

This body of work stands on the shoulders of even earlier analyses of the structural challenges within the vulnerable areas. In 2016 the city council agreed on a new policy called New Focus on Vulnerable Areas (Nyt fokus på udsatte boligområder). The aim of the policy is to work with vulnerable areas on multiple fronts:

1. Urban development

2. New Neighbourhood profiles
3. Active housing policy
4. Holistic family programmes
5. Schools and institutions

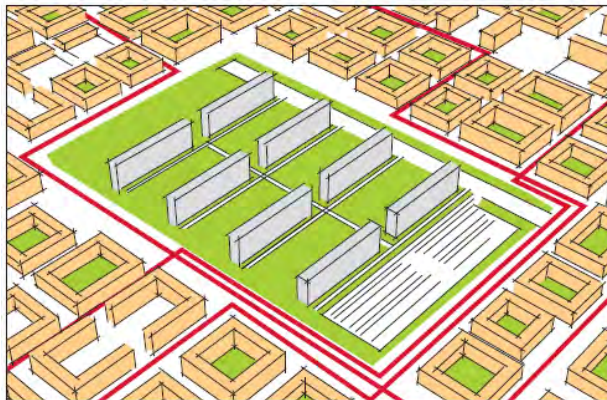
This means that there emerged a common understanding, that in order to solve the structural challenges it wasn't enough to focus solely on the recalibration of the urban fabric. A more holistic approach not just with new schools and cultural infrastructure, but also a change in the quality of public investments was deemed necessary.

Since 2016 Høje-Taastrup has worked on these five areas to achieve the goal of zero vulnerable areas in the year 2026. Since then, the Danish government has produced a national policy against what is coined as parallel societies. 15 areas in Denmark have been appointed and Høje-Taastrup is home to two of them, one being the study area Gregersen and the other being the neighbour to the east, Taastrupgaard.

When it comes to changing the urban fabric in neighbourhoods such as Gregersen the common assumption is well known and simple: the modernist planning regime must open up and the scale reworked.

Barriere i byen

Et boligområde, hvor trafikken ikke er koblet på byens trafik, udgør en barriere i byen



Sammenhæng

Et boligområde, hvor trafikken er koblet på byens trafik er bedre integreret i byen og bidrager til byen

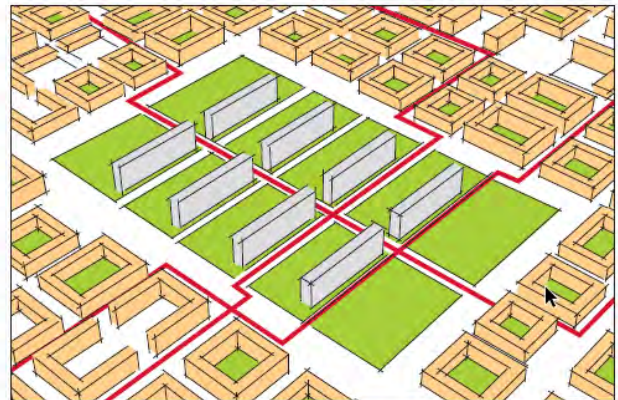
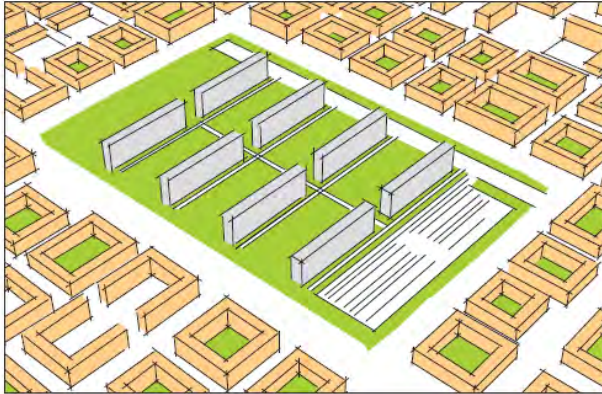


Figure 4. 28: Barriers and connections in modernist housing, Source: "TRYGT OG SKØNT BOLIGOMRÅDE - En designguide til social bæredygtighed"

Barriers need to be broken down and connections must be made. If traffic isn't an integral part of the urban fabric, it becomes a barrier. Instead, the traffic of a housing area needs to merge seamlessly with the surrounding city for it to be integrated properly in the surrounding city.

☉ Store enheder

Et stort boligområde, som ikke er inddelt i mindre enheder, kan føles anonymt og upersonligt



☉ Mindre enheder

Det er nemmere at føle sig hjemme og danne fællesskaber i et boligområde, som er inddelt i mindre enheder

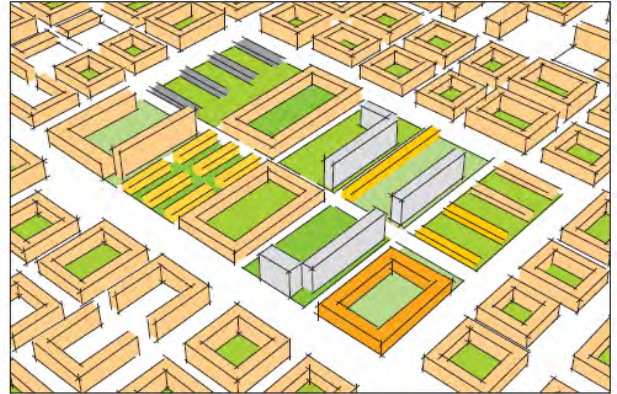


Figure 4. 29: Breaking down scales in modernist housing, Source: "TRYGT OG SKØNT BOLIGOMRÅDE - En designguide til social bæredygtighed"

Furthermore, the scale of the modernist urban areas has to be broken down, the height of the buildings has to vary and the monotony broken. In relation to this it was decided to make a comprehensive analysis of the vulnerable areas in order to identify a new profile for each. This resulted in Gregersen getting the label Knowledge city. The map below shows why.



Figure 4. 30: Existing and future knowledge infrastructure

The blue buildings are existing knowledge infrastructure, made up of the local school, the gymnasium, and the Danish Institute of Technology. The red buildings are the ones that are planned, with the Quarter House already in tender process and soon under construction and the much larger Campus grounds coming in a few years. Also planned is a Bus Rapid Transit system (BRT) to connect these educational nodes with the rest of Copenhagen, as illustrated below.



Figure 4. 31: Bus Rapid Transit (BRT) and stops in the neighbourhood

The yellow circles mark the 600 m radius that passengers can be expected to comfortably walk to a BRT station.

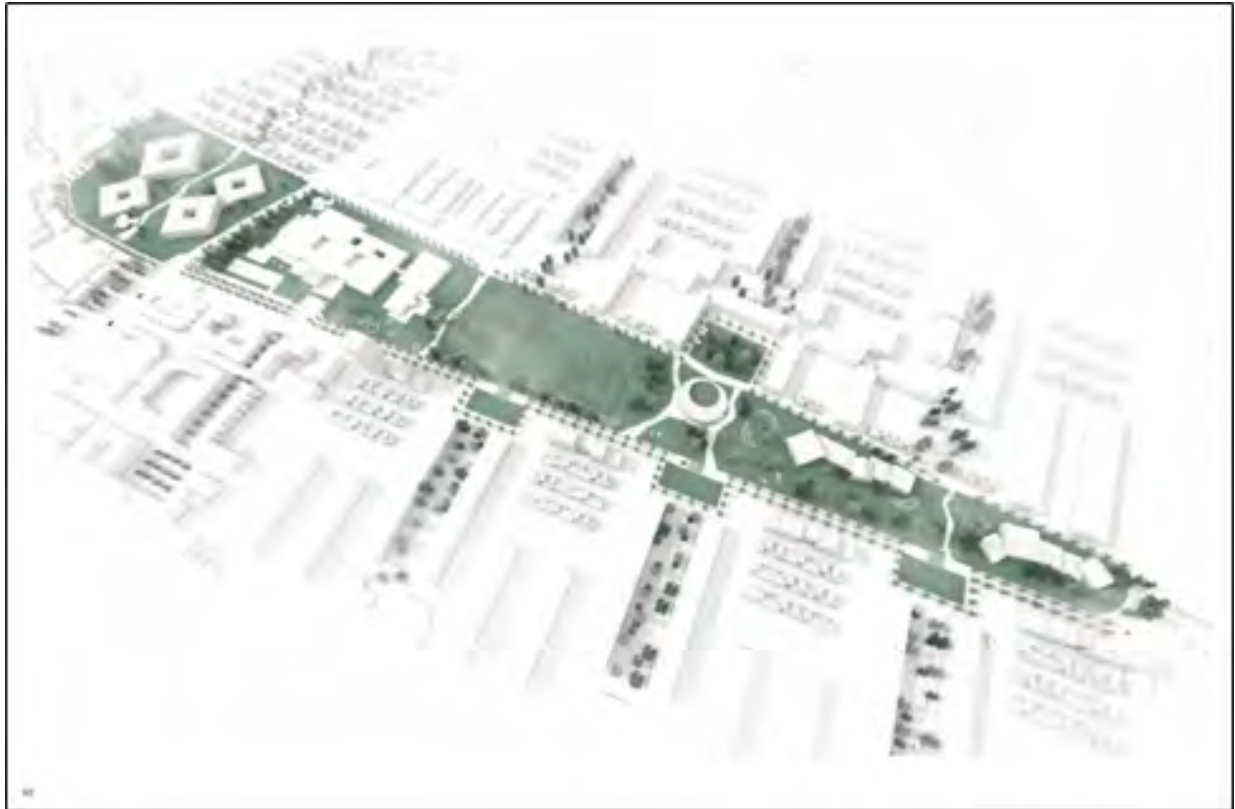


Figure 4. 32: The green spine of the neighbourhood as envisioned by COBE

Above is a representation of the Gregersen neighbourhood with a so-called green spine. It's one of the strategic tools that were suggested in 2017 by a team led by COBE.

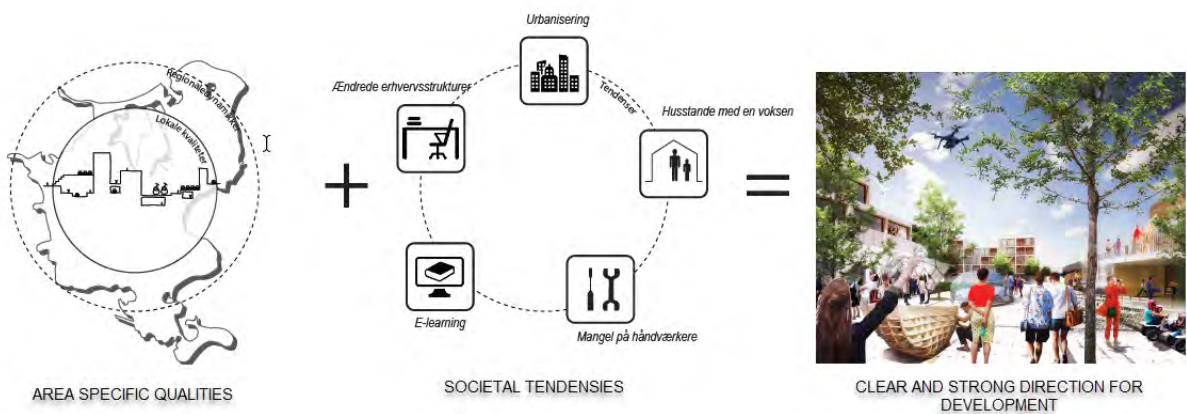


Figure 4. 33: Høje Taastrup as part of greater Copenhagen and greater societal tendencies



Figure 4. 34: The knowledge city and how it connects to the surrounding city

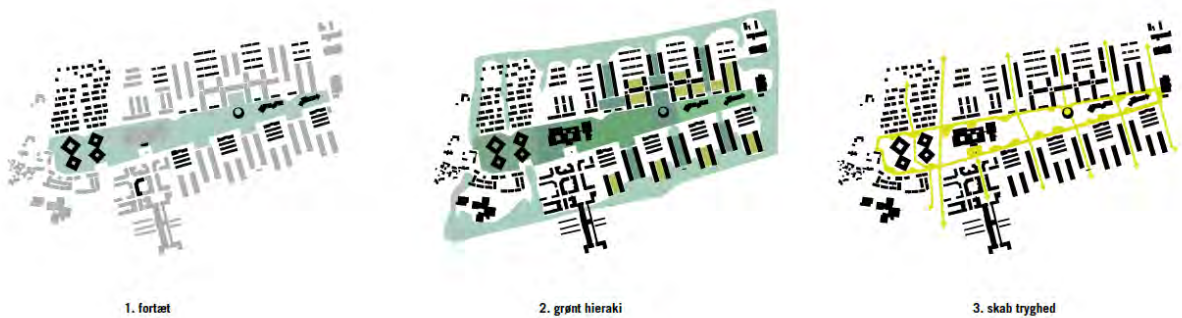


Figure 4. 35: Three tools: densification, greening, safety

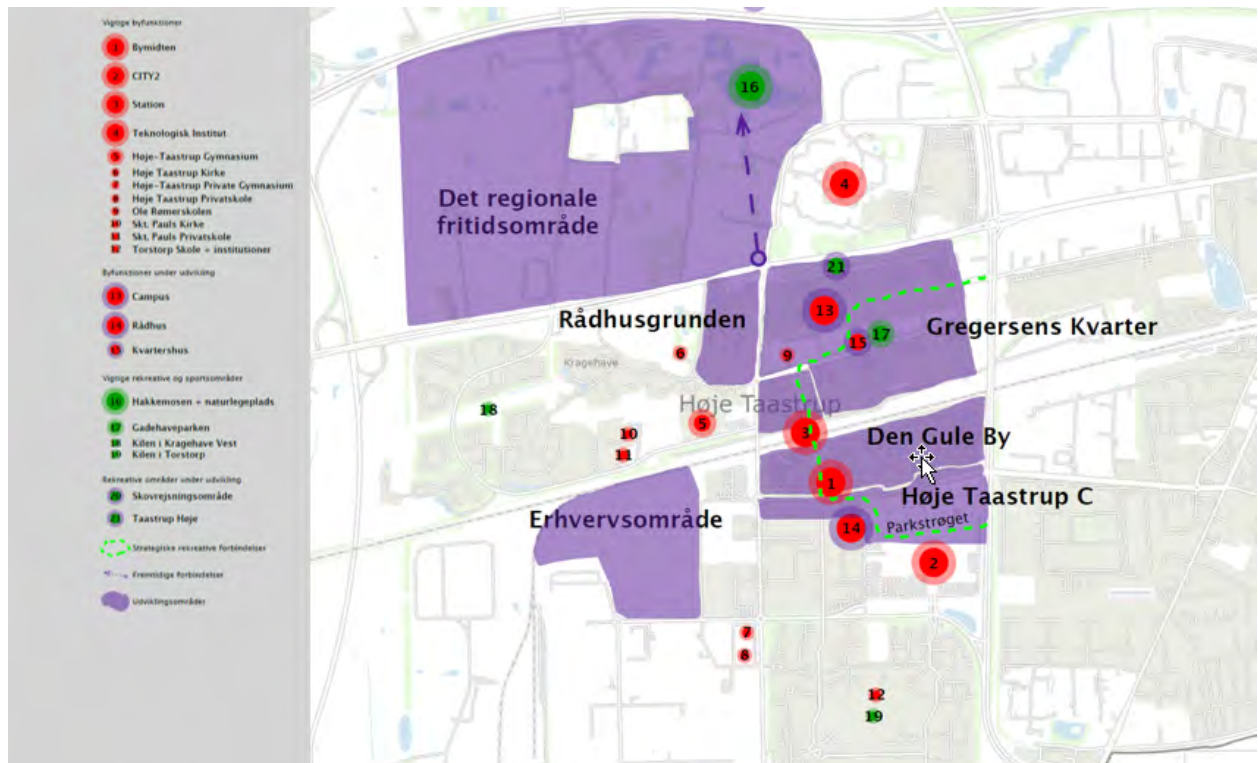


Figure 4. 36: Ongoing projects and infrastructure in and around Gregersen

Gregersen can be seen on the map above. The map illustrated which projects are ongoing inside the study area and in the neighbouring districts, and the ways in which new connections can be made between them. The red circles are buildings while the green ones show recreational and leisure areas. The size of the circles indicates the size of the projects and investment in a specific place. Thus, the new quarter house in Gregersen can be seen as the medium sized red circle with the number 15, while the campus building nearby is a larger circle with number 13. It is interesting to note the very large investments in the neighboring areas to the study area, making the idea of a healthy corridor even more relevant.

4.3.1.4. Urban/landscape design Projects

In 2019, Høje-Taastrup Municipality and the housing company for Gadehavegård agreed on a development plan for housing complex, which describes how many social housing units are to be demolished or converted into youth housing and housing for the elderly, as well as the establishment of new private housing, a campus house, and a neighbourhood house, so that the share of public family housing units is reduced from 100 % to a maximum of 40% by 2030.

On the basis of the development plan, an architectural competition was organised, with the support of Realdania, to translate the development plan into a concrete development plan, as well as the transformation of infrastructure, urban spaces, etc. The competition's ambition was to secure a basis for a development direction in terms of buildings and landscape, which could subsequently be a prerequisite for the preparation of the local plan. It has also been an ambition that Gregersen becomes part of the rest of the city and that a development of the whole neighbourhood takes place.

The competition was judged by an evaluation committee consisting of two professional judges, representatives from Gadehavegård's departmental board and domea.dk, representatives from the City Council and the administration and a representative from Realdania. A unanimous jury selected Arkitema Architects and AB Clausen and JL Engineering's proposal "More street, more garden and more courtyard" as the winner.



Figure 4. 37: Excerpts from the winning proposal showing the ambience of the future Gadehavegård

The winning proposal that was published to residents in May 2020 is now being worked on.

MERE GÅRD!



Figure 4. 38: A 3D presentation of the winning proposal

The proposal includes the creation of a new east/west pedestrian street (called the 'zipper'), which will bring life and activity to the development. The street connects to Taastrupgårdsvej, which is proposed to be narrowed west of Halland Boulevard. The western part of Øtoftegårdsvej will be abandoned and a north/south connection will be established with a new intersection at Roskildevej. It is the Administration's assessment that the project has succeeded in creating a street pattern that is much more urban space than traffic, and that brings together rather than divides. The principles for infrastructure seem logical and clear, and that they can form the basis for the further development of the plan.



Figure 4. 39: Connectivity in the winning proposal

A knowledge route for pedestrians and cyclists is established, linking Høje-Taastrup St., the neighbourhood centre, the Campus, the Technological Institute and Hakkemosen, with a pedestrian and cycle bridge over Roskildevej. The bridge will connect residents to Hakkemosen and provide all citizens with a shortcut from the station to the natural and recreational qualities of the marsh.

New private housing and housing for the elderly is proposed on the existing parking areas. The elderly housing will be located at the easternmost point, with the possibility of reusing the existing residents' house as a community centre. To the west, space is provided for the Campus by demolishing a block of flats. If additional campus m2 are needed, they are proposed to be located east of the school and on the Gadevang site. It is also proposed to allow for new private development along Gadehavegaardsvej.

The plan calls for the creation of a new landscaped area incorporating the northern noise barrier, which will become a much larger area when Øtoftegårdsvej and the parking areas are removed. It will be a place for life, play and wild nature, complementing the more programmed activity park at the ball fields. New parking areas will be established as 5 larger clusters at the entrances to the area, recessed to also be rainwater harvesting and with trees to give them a landscaped feel. It is the administration's assessment that the new landscaped space facing Roskildevej contributes to creating a completely different experience, not only for Gregersen and the new homes, which will have good access to green spaces, but also for the entire municipality.

The demolition of the social housing is proposed to create roof terraces, point houses and two-storey terraced houses. The administration believes that this provides a more varied building and human scale, but according to the housing association it is also experientially expensive and complex and therefore requires a separate analysis.

MERE GÅRD!

Fremtidens Gadehavegård er et mangfoldigt sted: Blandede beboere og ejerformer, blandede familietyper og livsformer, blandet trafik og forskelligartet natur. I Gadehavegård skal der være plads til alle og vi skal imødegå vores tids udfordringer med stigende befolkningstæthed i og omkring byerne, nye livsformer og familiemønstre. For at sikre sammenhængskraft i bebyggelsen lægger vi særligt vægt på to ting: Fællesskaber og identitet! Med grebet 'Mere gård' vil vi organisere boligerne i bæredygtige fællesskaber. Vi vil sætte fokus på at skabe et område med høj social bæredygtighed og sammenhængskraft i alle skæaler.

FÆLLESSKABER

Gennem forskellige tiltag skaber vi grund for etablering af fællesskaber på forskellige niveauer. Fra det bymæssige niveau helt ned til det lokale fællesskab omkring boligen. Fællesskaberne sikrer både lokal sammenhængskraft og spiller ind i området grønne dagsorden: Jo mere vi kan dele, desto mindre forbruger vi!

IDENTITET

Fremtidens Gadehavegård bliver kendt som et grent og mangfoldigt boligkvarter, der er knyttet godt op på byens netværk med nem adgang til byens attraktioner. Det vil blive fremmevel for sine høje klimambitioner og vi viser vejen som et banebrydende klimaneutralt projekt. Folk vil tale om den sociale transformation, der er sket og hvordan man nu ser helt nye typer fællesskaber opstå på tværs af ejerformer. Vidensruten, Lymåsen og Klimastien har skabt en masse liv i bebyggelsen og folk besøger området for at blive inspireret af de mange banebrydende boligeksperimenter, der viser vejen for den moderne fællesskabsorienterede og klimavenlige bolig. Bakkedragene og de grønne lavninger er blevet hele kvarterets store grønne legeplads for både store og små. Campus har bragt både læring og ungdomsliv ind i bebyggelsen - mange vælger at bo i ungdomsboligerne lige ved siden af.



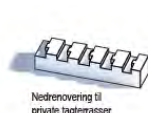
Upcyclet alu-facade



Genbrugstegl



Forkullet genbrugstræ



Nedrenovering til private tagterrasser



Nedrenovering til fællestagterrasser



Nedrenovering til to-etagers rækkehuse



Nedrenovering til punkthuse



Almene familiebøliger



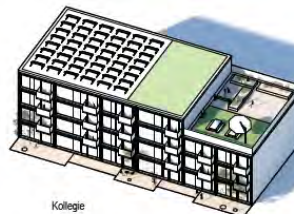
Rækkehuse



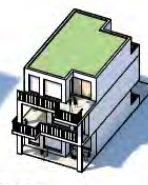
Etageboliger 75m²



Etageboliger 95m²



Kollegie



Ældreboliger



Fællesskab på byniveau



Fællesskab på kvartersniveau



Fællesskab og identitet på byggelevesniveau



Fællesskab og identitet i gårdene



Fællesskab på tværs af ejerformer

Figure 4. 40: Principles of reworking and downscaling the existing neighbourhood



Figure 4. 41: The three overall stages of the development plan to be completed by 2030

According to the schedule the whole plan will be completed by the year 2030. This correlates well with the master plans described in chapter 4.1.5.

4.3.2. Social description

The data to be collected at parish and neighbourhood level are almost the same collected at general, city level with a closer loop on the selected case study. The idea is to verify and assess if the urban profile is confirmed in the area or shows a better or worse performance in the selected neighbourhoods. Social data could be good in certain aspects, bad in others, offering a different scenario for the development of the NBS solutions as per URBINAT catalogue.

4.3.2.1. Demography

Gregersen is a neighbourhood with a significant and growing ethnic minority population and a strong tendency towards Danes moving out. As the graphs below show, Danish citizens now make up as little as 60 % of the total population in the neighbourhood, and the tendency is probably going to continue for a while.

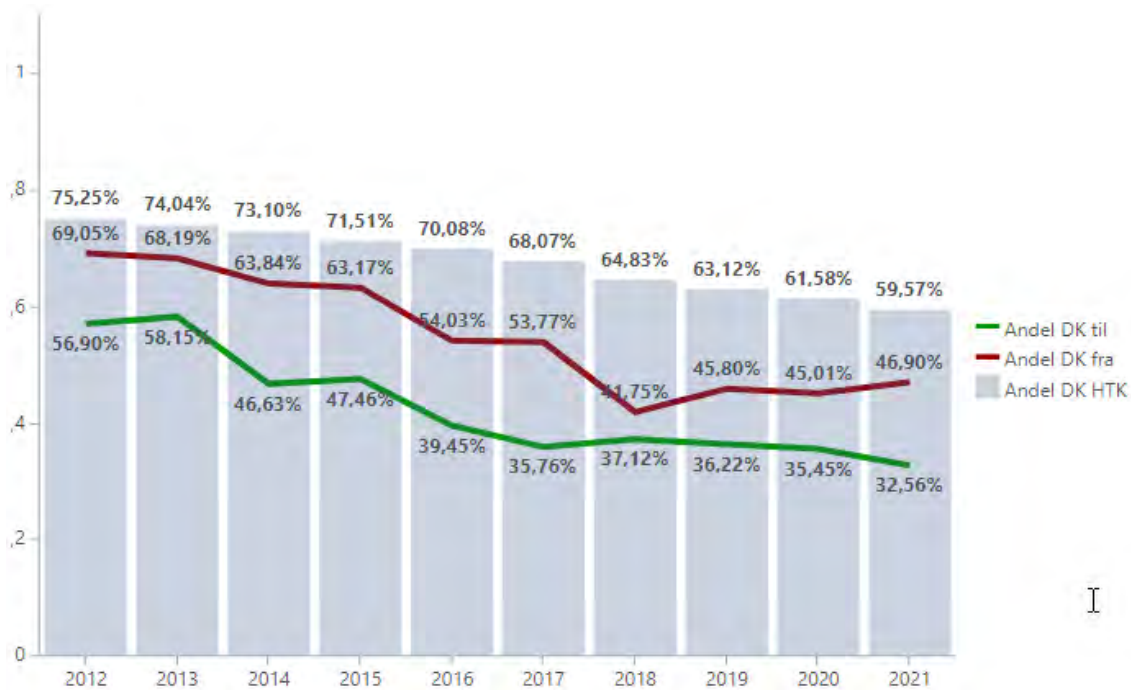


Figure 4. 42: Proportion of non-Danish citizens in Gregeresen

The next graph shows where the non-danish residents originate from, the largest groups being Eastern Europe and Asia. As described in chapter 3.2.1 there has been an influx of Polish citizens in the last ten years while the Asian group to a large extent is made up of people of Turkish and Pakistani descent.

The red line shows those Danish citizens who are moving out while the green line shows those moving in. The net development results in the many consecutive years with falling Danish presence in the neighbourhood. The figure below describes the origin of the non -Danish population.

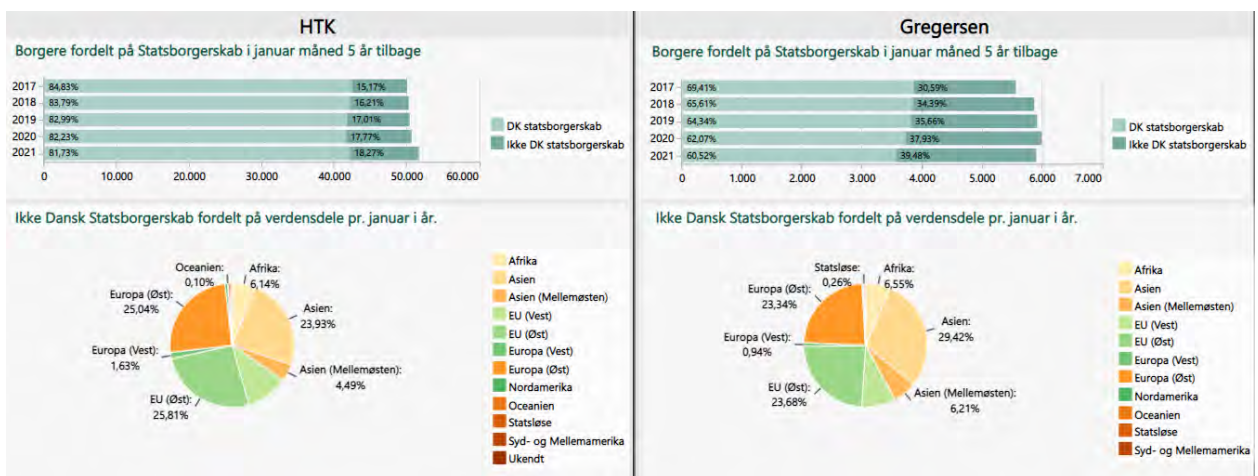


Figure 4. 43: Origins of non-Danish population



Figure 4. 44:A comparison of household ownership and typology between HTK and Gregersen

This image shows the difference in types of ownership and housing typology between the municipality as a whole and Gregersen. On the left is ownership and here you can see how the ration between social rental (almen lejlighed) and ownership in Gregersen is 39 - 50 and only 26 - 59 for the municipality. And on the right the difference in typologies, with Gregersen almost exclusively having apartment buildings and the rest of the city being more mixed between detached, semi-detached and apartment buildings.

4.3.2.2. Safety and health

Gregersen has regularly experienced periods of very high problems with young delinquents, who stayed in the residential area and caused insecurity in the area. Over the last 2-3 years, a small group of young people have been convicted of various offences and have either been in prison or in secure institutions.

A few of these young people live in Gregersen, where they frequent the local youth café. The overall aim of the plan is to prevent new children and young people from ending up in a similar situation. We do this in close cooperation with the school and the youth café, where we organise activities

with the young people and try to involve them actively in the local area, while at the same time working in a targeted way to link them to education and the labour market.

Many children and young people from Gregersen do not participate in leisure activities, either because of a lack of resources or other barriers in their families. The number of children aged 10-14 registered in a day-care centre is 10% below the average for the rest of the municipality. A number of children and young people in Gregersen therefore spend a large part of their time hanging out in the area without parental supervision (especially boys), while others are kept at home because parents are insecure about how they might be influenced in the neighbourhood (especially girls).

Leisure time is a key arena for social learning and personal development, both through the activities young people can try out and through the social encounters with people from different social contexts than those in which young people normally move.

The crime prevention work of the workers from the holistic social housing master plan is based on the continuous identification of particularly vulnerable children and young people who can be characterised as being at risk of crime. The focus is on making a special effort to motivate these young people to take advantage of offers that can lead them away from a criminal career by motivating and supporting them in obtaining a leisure job, an education, and a more active leisure life.



Figure 4. 46: Use of the area as measured in 2018 by Arki_lab



Figure 4. 47: Feeling of unsafety as registered in 2018 in connection with the development of the community park. Measured in 2018 by Arki_lab



Figure 4. 48: Citizens' wishes for better connections, 2018. As measured in 2018 by Arki_lab

4.3.2.3. Participation

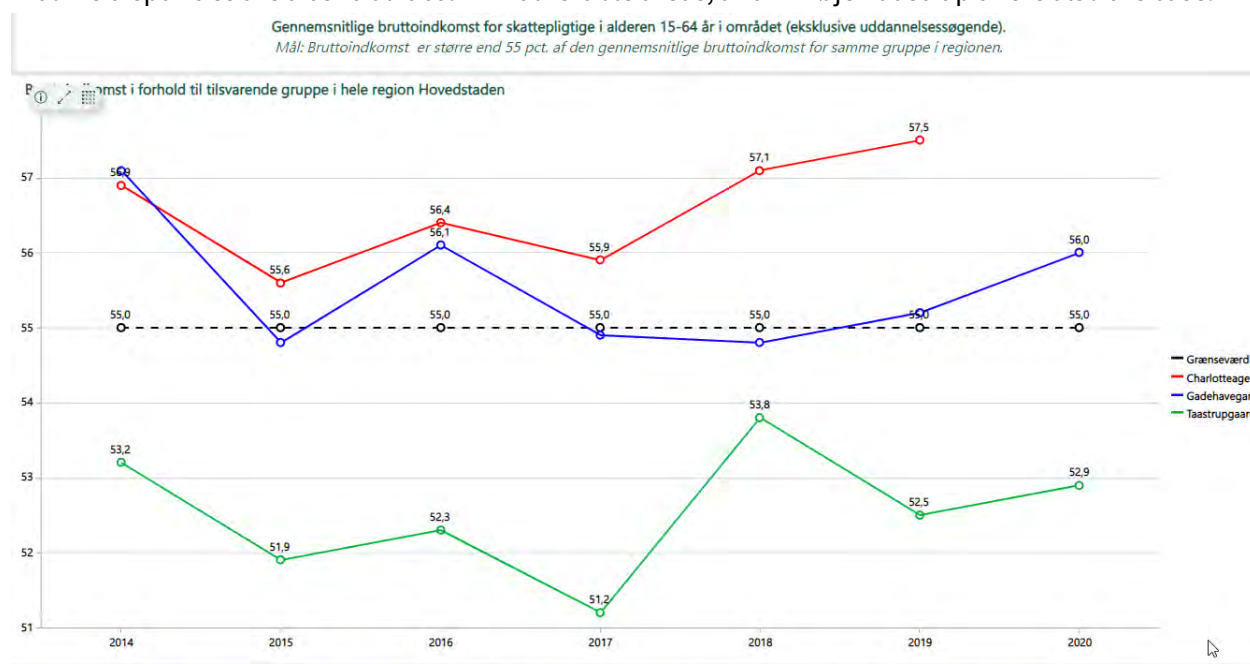
The voting rates at local municipal elections are quite constant at around 65 %. However, voting rates at the local school district were only 55 %. The next municipal election is in November 2021.

4.3.3. Economic description

The data to be collected at parish and neighbourhood level are almost the same ones collected at the city level. The purpose is to have data at a lower level, for assessing areas in the city. These data will be also useful for the study of the corridors, the contextualization of specific city areas in the wide city context.

4.3.3.1. Income and poverty

Income disparities are a central factor in vulnerable areas, and in Høje Taastrup this is also the case.



Anm.: Den gennemsnitlige bruttoindkomst for skattepligtige i alderen 15-64 år i området (eksklusive uddannelsessøgende) er mindre end 55 pct. af den gennemsnitlige bruttoindkomst for samme gruppe i regionen.
Kilde: Transport-, Bygnings- og Boligministeriet. Liste over ghettoområder.
Opdateringsfrekvens: Årligt

Figure 4. 51: Average income for taxpayers (age 15-64) in the three most vulnerable areas in Høje-Taastrup compared with the capital region

As the graph shows, the three most vulnerable areas in the municipality all sit on or just around the 55 % mark. This is the threshold percentage for income as indicator on the national list of vulnerable areas, meaning that the black dotted line in the graph indicates 55 % of the average income in the capital region, and not in Denmark. The housing area Gadehavegaard, which makes up about 40 % of Gregersen, sits continually on this line, stating the obvious fact that income disparity is a major factor in the lives of the citizens here.

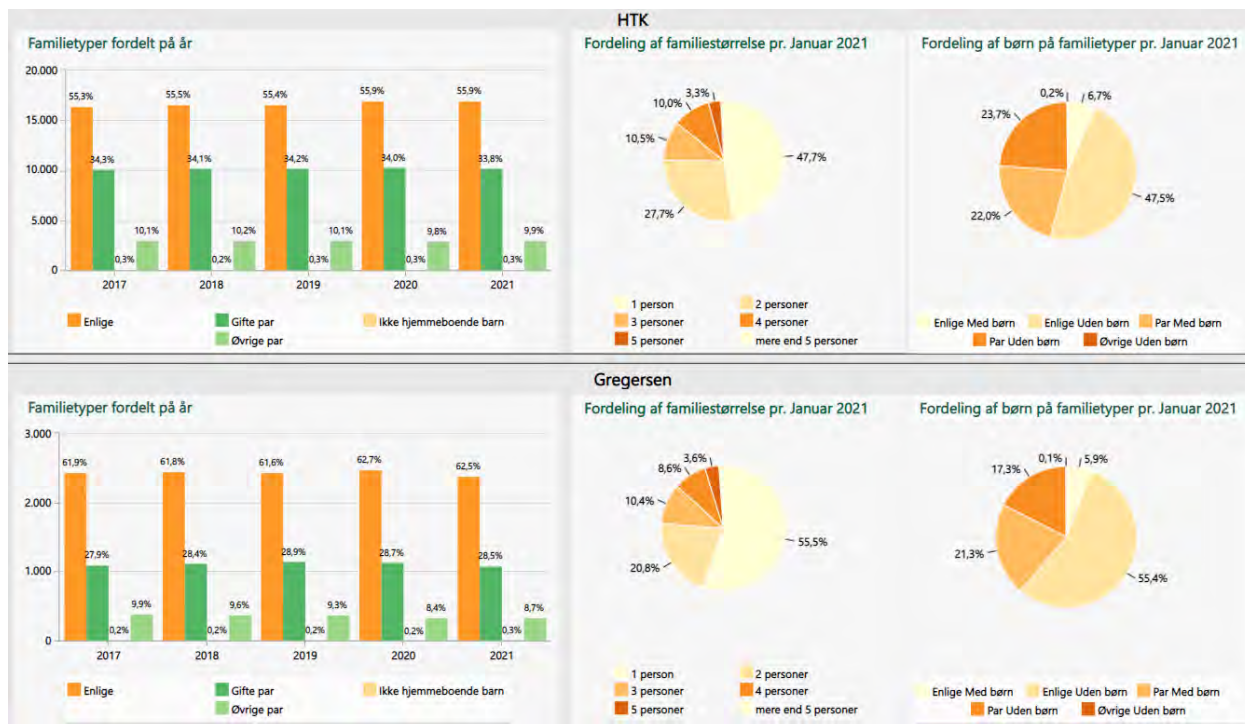


Figure 4. 52: Family sizes and number of children per family, a comparison between HTK and Gregersen

This next image shows family sizes and family types in the municipality as a whole compared to Gregersen. There are several striking learning points here. Gregersen has almost 7 % more singles than the municipality, and those 7 % are refund in the municipality with the 2-person family segment. Furthermore, 55,5 % of the singles in Gregersen are without children compared to 47,7 % in the rest of the city.

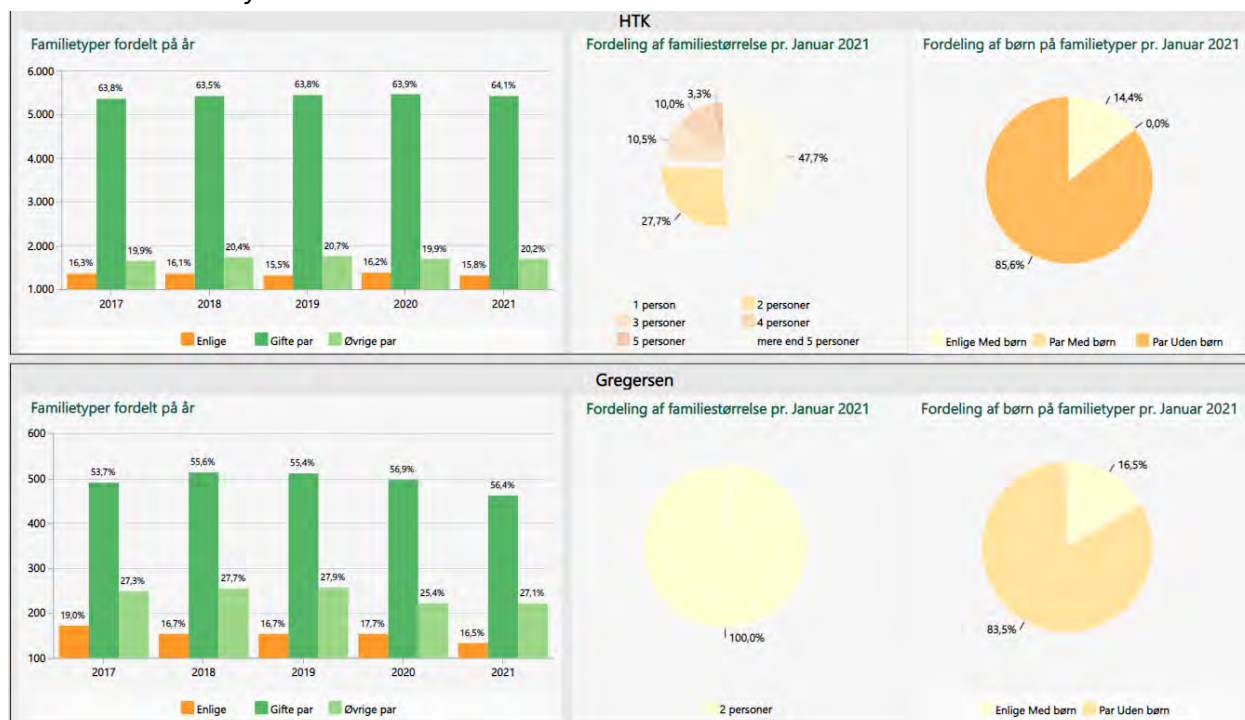


Figure 4. 53: A specific look at 2-person families, a comparison between HTK and Gregersen

If we dive into the 2-person family segment, significantly more people in Gregersens (27%) live out of wedlock compared to the rest of the city (20 %).

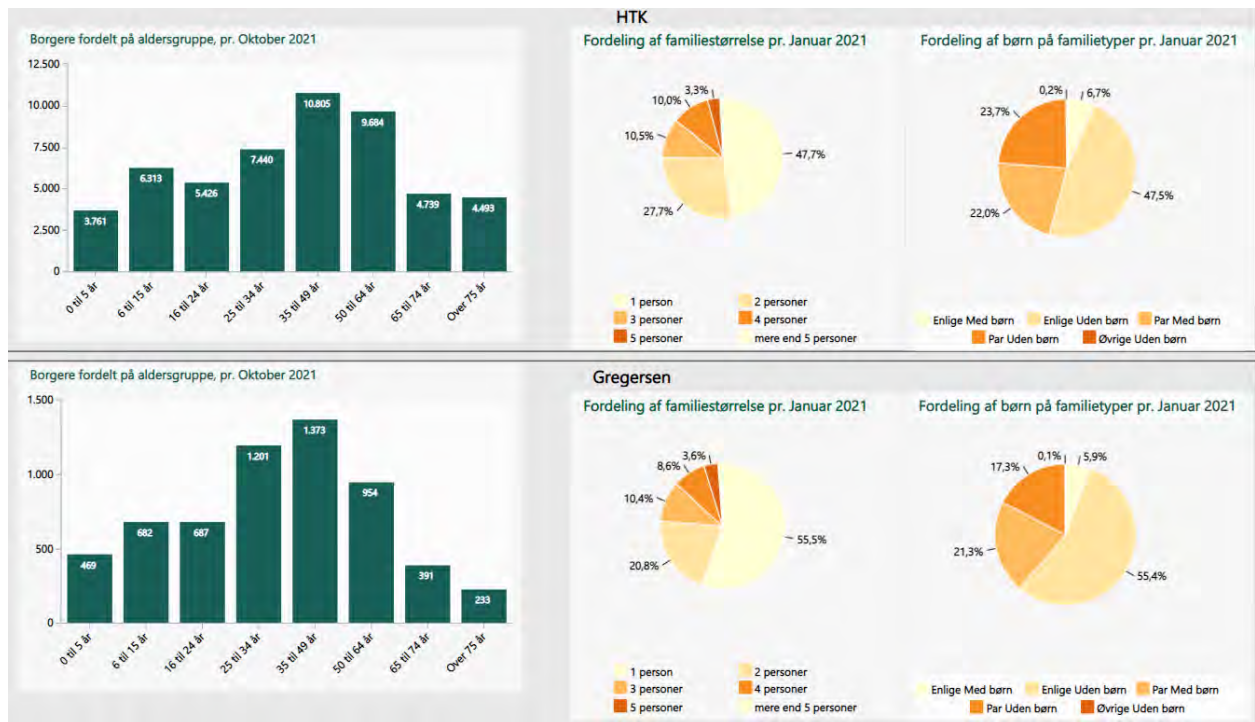


Figure 4.54: Distribution of age groups with family sizes

Now, if we dive into the image above, it becomes more obvious that there is a connection between age and marital status. In general, Gregersens has a younger population and younger couples, and it's not completely unrealistic to assume that many haven't yet had time to get married.

4.3.3.2. Employment

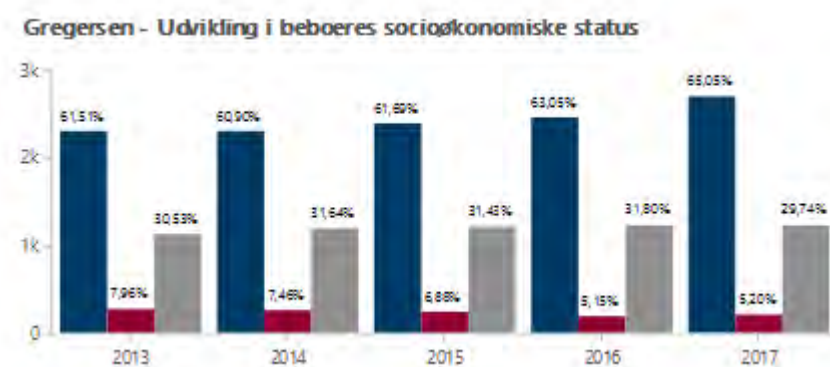


Figure 4.55: Evolution of inhabitants socioeconomic status

The image above shows the development in socioeconomic status for the citizens of Gregersens. In blue is the employed, the red are the unemployed and the grey is outside the workforce, being either kids, elderly, disabled or indisposed.

Gregersen - Beboere og socioøkonomisk status, 2017 (pct.)



Figure 4. 56: Distribution of employed, unemployed and outside work force

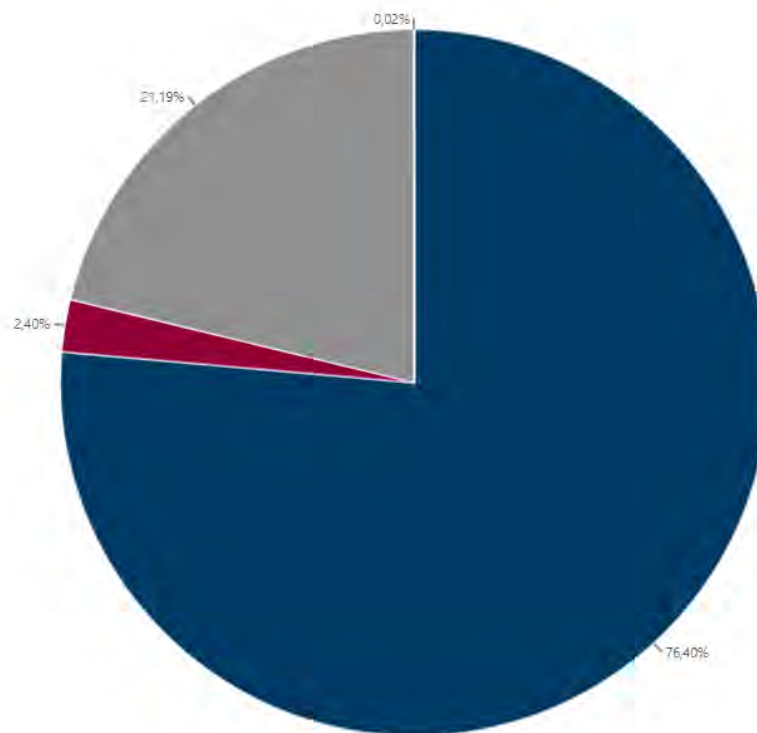


Figure 4. 57: Distribution for Høje-Taastrup as a whole cleaned of data from deprived areas

Here the difference becomes quite clear. Especially with 10 % more being employed and about half as many unemployed. Last but not least the grey category (outside the workforce is more than 8 % bigger in Gregersen, meaning not only that there are more young people but also many more who for some reason or another are undisposed.

4.4. Stage 2 - Local diagnostic report: methodologies

4.4.1 The first stage of the Local Diagnostic

In Stage 1 of the Local Diagnostic, the Follower cities assembled and organized an exhaustive data set useful for the project URBiNAT. The Local Diagnostic designed by the Follower cities is the model used by the Follower, so that they have implemented and performed their own Local Diagnostic using the experience of the project partners.

The local partners of Høje Taastrup have found three intervention points that they want to continue working with. The three points are all inside the study area, and though they are very different from each other, they all fall within URBiNATs guidelines for NBS. If realized, they will all contribute in their own way, to better connect the study area with the rest of the city fabric. The interventions are marked with blue, yellow, and pink inside the study area (which is marked with red):



Figure 58: The study area (Gregersen) and the three intervention points

Project 1: Højdedraget (the highland) and future park connection

At the northern edge of the study area, locally known as the Gadehave Quarter, there is a noise barrier which blocks the noise from the double track Roskilde road. Some of the barrier is owned by

the local URBINAT partners of the housing association DFB, while the rest is privately owned by neighbouring housing associations.

In the current redevelopment plans the road just south of the noise barrier (Øtoftegårdsvej) will be completely removed along with most major parking areas. In their place a new green park will be developed, stretching from the embankment to the edge of the buildings for the good of citizens and the community in the area.

Within URBiNAT we wish to explore the likely facilities and amenities to be developed and sustained on the embankment and the linkages to the rest of the park to be developed in the coming years during the refurbishments.

The co-diagnostics will involve representatives, inhabitant associations, schools and clubs in the Gadehave Quarter and neighbours.

- *Walkthrough* with a group of citizens from each of the two-three housing estates (board members of housing estates and the developing garden community).
- *Walkthrough* combined with *photo-voice* showing specific sites where they see particular problems or could see particular developments (school group – two different age groups: adult citizens group)
- *Focus group discussion* with representatives from all housing estates discussing findings and asking additional questions while probing for problem prioritization and design ideas.

Project 2: The Yellow city district and connections to Gadehave Quarter

At the southern end of the Gadehave Quarter, the Yellow City acts as a narrow connection point to the south. The Yellow City is centred around a large regional train station and mixed commercial and residential area. This area has a number of challenges and problems concerning crime, vandalism, unclear, insecure and unattractive residences and passages to other residential areas. Already there are three other related projects underway that the URBiNAT project will need to integrate with. This includes a project on improved lighting in the area, a project on parking infrastructure in the area and a project on active urban spaces. Furthermore, an additional project could be ready to start on security in the area. It is important that the URBiNAT co-creation activities integrate these projects and its stakeholders in the furthering of the corridor development between Gadehave Quarter and the yellow city district.

- *Behavioral mapping* – possibly including previous recent study results of citizens and commuting behaviour in and moving to and from the district as well as groupings and their intentions for developments in the district to improve public spaces and critical spaces.
- *Walkthrough* combined with *photo-voice* focusing on path challenges between yellow district and Gadehave Quarter indicating routes followed and problem areas to be raised and addressed (school and gymnasium group – different age groups; adult citizens commuting group; user communities of shops and restaurants in the yellow district)
- *Focus group discussions* with representatives from the stakeholders in the lighting subproject, the active urban space subgroup; the parking space subproject to discuss findings and coordinate how the different challenges can be addressed across the subprojects and how co-design could involve stakeholders and citizens.

Project 3: The grounds of the Gregersen community house

Marked with pink on the map is the spot where the future community house of Gregersen neighbourhood will be built. The spot is centrally located and can function as pathways to and between the residential areas in the quarter. The place could be designed to include facilities that can support activities to be undertaken in and around the community house. The intervention area already includes certain facilities (dog walking area; fitness facility; planting box garden), and these could be included and assessed in the project. Furthermore, the intervention area borders on a large sport- and play area as well as other leisure activity facilities aligned with the adjacent road that was recently narrowed and modernized.

We propose to run a walkthrough combined with Photovoice and focus group discussions with stakeholders in relation to four specific challenges in Gadehave Quarter and how we might develop activities and installations that would help address one or more of these challenges. We will therefore seek to define and mobilize the participatory culture around key topics and challenges that can be addressed in and around the community house. These could cover:

- Health issues
- Economic issues
- Education and employment
- Common garden Community
- Festival group
- Youth culture
- Safety and security

General methodology and strategy

For each of these challenges, it is possible to identify and mobilize a range of stakeholders and existing initiatives that can help create new and beneficial participatory activities to help address and solve problems within these challenges.

For instance, in terms of health issues, the following stakeholders have been identified: sports clubs and social activities, municipality departments and ancillary outplaced staff, volunteers from the community, general practitioners (doctors' clinics), patient organizations and NGOs, health & fitness clubs, manufacturers of health products, the local pharmacies, schools and hospitals, etc.

For economic issues, the team would invite the financial advisor from the municipality, volunteers from the community, the spare time job project for youths, representatives from shops like coop, representatives from banks, NGOs helping people with money issues, etc. These groups will all be invited to take part in working groups developing ideas and solutions to be tested in the community and around developing both participatory activities and physical installations and facilities to address specific health, economic and other issues. Similarly, the participatory culture will be mapped for other challenges incl. municipality and housing association involvement. Where there is traction and motivation we will engage in co-diagnostic and following that co-design of prototypes and projects in the area.

4.4.2 Design of the research plan for the second stage of the follower cities' local diagnostics

This section is dedicated to describing the set of participatory activities used to perform the co-diagnostic and feed the following phases of co-design and co-selection of NBS. All the activities were proposed and validated within the collective work in the workshops/community meetings.

After a first stage LD, where all master plans have been compiled and political structures identified, more attention is now turning towards URBINAT and its importance for the completion of pivotal projects in Gregersen. As a matter of fact, URBINATs co-design activities are now integral parts in the development of the three intervention areas.

This was a very good exercise for us, and it resulted in some very good feedback from the local partners from SLA . In the image below, you can see how SLA have interpreted our policies, master plans and our choice of intervention areas into a coherent idea about how to program a future healthy corridor.

Gadehavegård - udvalgte byrum og forbindelser



Figure 4. 58: The study area (Gregersen) and the three intervention points

NBS kataloget - tilpasser sig sted og behov

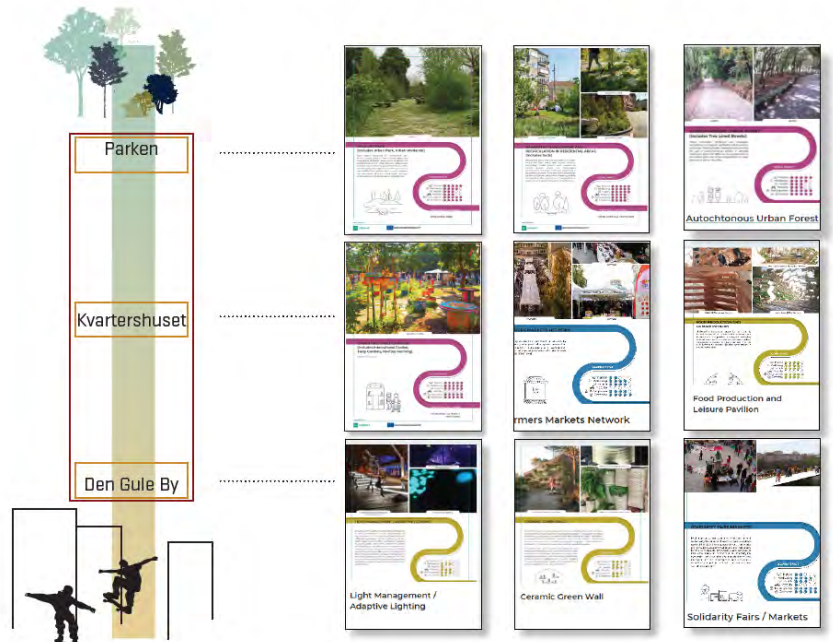


Figure 4. 60: SLAs suggestion for specific NBS tools for specific places on the Knowledge route gradient.

Prioritering

- Mindre åbningstræk for hvert delprojekt



SLA

Figure 4. 61: Gregersen and the three intervention points (projects), each with suggestions to the types of projects that can be realised in each spot.

Engaging citizens and stakeholders in participatory activities to build on their visions and perceptions for a co-diagnostic. But since participants have been mainly from Gadehavegård, the

municipality will now reach out to inhabitants of the private housing associations and other formal actors in order to get their perspectives on the neighbourhood and the three intervention points.

More specifically, the boards of housing associations in other parts of Gregersen, namely Gadevang and The Yellow City, will be invited on another round of walkthroughs. The local school will be invited to create a map of the neighbourhood that can be used as a tool for dialogue about the developments happening there.

The goal is to have the Local Diagnostic gradually converted into a co-design process with all stakeholders aboard. For project 2, the Yellow City and the area around the station, this entails having a closer dialogue with citizens, landowners associations and businesses about how a transformation can take place and what the focus should be. The work here will build upon the already completed design spatial analysis for The Yellow City.

For the community house in project 3, there is already a well-defined base of core users. They'll be invited to join a broader group of neighbourhood citizens for the co-design process that concerns the geographic centre of Gregersen.

Last but not least, the municipality has already allocated € 322.000 to the grounds of the community house (project 3) and € 806.000 to The Yellow City (project 2). And to the big project 1 the housing company and the national fund for social housing has put aside approximately € 13 mil.

While the economic framework is reassuring, it also means that URBINAT is going to be central in ensuring that people's voices are heard, and their wishes realised in the years to come.

4.4.2.1. Walkthrough

Walkthrough in Gregersen, May 21, 2021

Purpose

The purpose of the walkthrough was to let the group take us around the neighbourhood, let them show us around to their favourite spots, to make them talk about the area, to see what way they would lead us to the station, to listen to their opinions and observations of the neighbourhood and the spots they were leading us to. This would tell us something about their needs and desires for the neighbourhood.

Process

Interview guide

An interview guide consisted of these questions for the stops on the route:

1. The immediate reactions to the place: Describe this place to me, what do you see? What feelings does the place evoke in you?
2. The sensing of the place: What kinds of smells do smell? What sounds do you hear? Are those nice smells and sounds?
3. The use of the place: What do you come here for, what do you use this place for? What are the elements that make you like the place, and why?

4. Desires and dreams for the place: If you could decide, what would the place look like? Which feeling would you like to have here?

It's important to strive for asking open questions, and to not introduce concepts such as "feeling safe/unsafe" (utryghed), "exciting", "boring". Let the participant use their own words.

Questions we would pose in the walk between stops:

1. How do you move around the neighbourhood? Do you do exercise, if yes, how?
2. What would make it easier for you to get around in the neighbourhood?

Tour description

The group consisted of six young girls and boys (50/50) around the age of 14. They are a part of the "allowance project", and we recruited them through the social housing unit in the area. An employee from the social housing unit (boligsocial medarbejder, Cathrine) with whom the group was comfortable was there to support.

We started by the tenants' house (Beboerhuset) to explain the purpose and plan for the next 1,5 hours. The plan was that we had three stops we wanted to go to and would decide the route to these stops, where we could also improvise other stops in between. The three stops were:

1. "Højdedraget"
2. The Circus wagon at Kvarterhusgrunden and
3. The station.

Cathrine had served cake and juice for the kids to help them get comfortable and a bit more energized this Friday afternoon. First stop was "Højdedraget/volden/Taastrup Høje". This was not a place that the young had been to or used before.

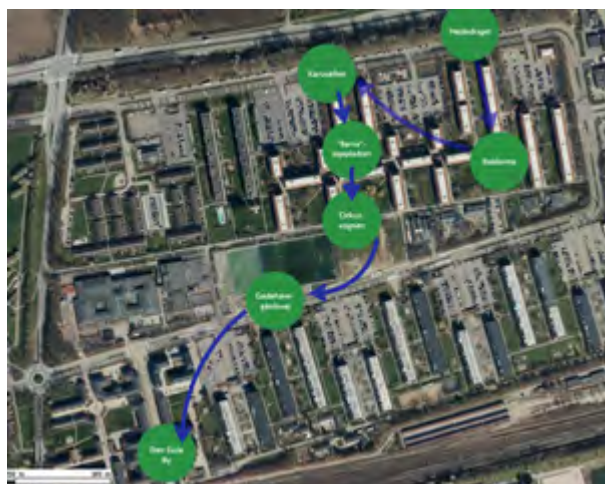


Figure 4. 62: The route we walked

"There is nothing to do here", "There is a lack of space", "Maybe some people that like nature pluck flowers".



Figure 4.63 : The group next to Højdedraget

It was a bit easier to make them talk about what they would want here. They mentioned small cabins in the treetops, suspension bridges and swings between them, more space, paths. One expressed curiosity of what was on the other side of the hill.

On the way to the next stop, we talked about the hill in the middle of the neighbourhood, which apparently is a good spot for sledding in the winter, and the bench on the top is popular.



Figure 4.64: The interactive carousel was a fun experience that helped loosen up the atmosphere among the shy participants.

Next stop was an improvised one, and one of the boys led us there. We asked if the boys would demonstrate how to use the swing, but they declined. Then one of the girls did it and one of us did it, and several jumped on. It was a very interactive experience. The boys told us they use it a lot because it is fun, and several people could use it at once.



Figure 4.65: The 5 swings is a part of a playground with wood chips as surface surrounded by trees

On our way to the circus wagon, we stopped at another playground. The first thing the girls said was that it was only for small kids – the next thing they did was to go on the 5 swings and interact with the group. It seemed that the play had started at the carousel and now they all joined in. They told us it was cool that they could swing at the same time.

By Kvarterhusgrunden they told us that there was a lack of football nets. They use it less now than before where there were more nets. The current nets are being used by the local football club on the artificial turf pitch, so there are never enough goals. They kick the ball up the fence of the pitch instead.

By the circus wagon the subject of the forthcoming changes in the neighbourhood were mentioned. On the sides of the wagon posters with the master plan hang to inform the tenants about the new park and some demolitions of residences that will take place in a few years. We asked them what they thought of the drawings and if they could recognize the maps and where the changes were going to be. One of the boys lived in a residence that was going to be demolished. We became aware of the sensitive subject and moved on to the urban garden planters. Here a girl talked about the old vegetable gardens and that she missed them because her family used to have one. The new ones were not the same.



The girls decided next that we were going to Gadehavegårdsvej and the new tarmac which is good for skating. We stopped at the new playground by the school. One of the boys told us he used it sometimes and stood on top of it. They said that the playground is popular for kids of all ages, also during recess.



We asked about crossing the road and how they felt about the road. They said that it was “normal”. One of the boys’ lives on the other side of the street, so he must cross it on the way to school. He was 7-8 years old when his parents allowed him to go to school on his own.

Figure 4.66 and 4.67: Pictures from walkthrough

On the way to Den Gule By one of the boys pointed out a “scary/dangerous” (“farligt”) corner, where there was no visibility from any of the sides. It was on his way to Rema 1000 and here he was always a bit nervous of a car or bike would come around the corner

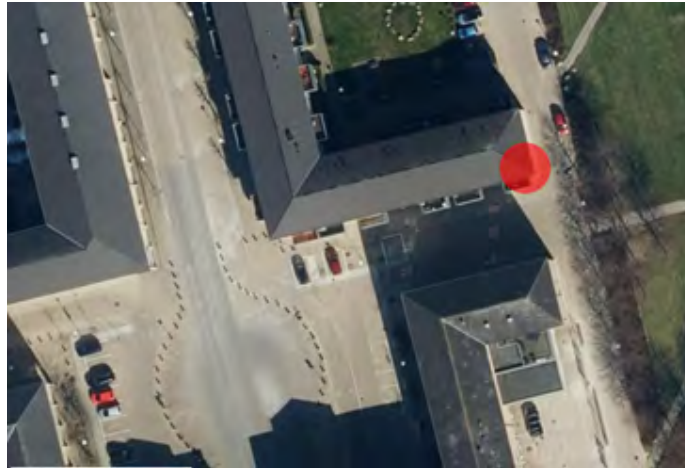


Figure 4. 68: An unsafe place

We stopped at the square. The girls told us that the one bench on the square was very popular. At recess they would hurry up to the station to get lunch and go back to the square to get the bench before anyone else. They would also hold the bench for each other while the others got them lunch.

Another girl said that it kind of felt “unsafe” (utrygt), because of “scary types” (skumle typer) at all hours of the day.

Reflections

It was hard for the kids to talk freely about their feelings about a place. When asked about senses, it was a bit easier, but still many answers were that it smelled “normally” or it was a “normal” place. This is also the reason for the descriptions of the participants' behaviour – their behaviour sometimes said more about their feelings of the place than what we could make them say.

Be prepared for the sensitive subject of demolishing residences. Especially when the participants are young and perhaps are not aware of the big changes that the area is facing

One of the participants would have liked to have the questions beforehand, so that he could have come more prepared. We could make the same group do a walkthrough in Den Gule By and give them the questions beforehand.

It's a good idea to provide with snacks and/or beverage at some point during the walkthrough.

Stick to the questions provided, and be patient when waiting for the answers, give people time to think. They might not be in the same mindset as you and might never have heard questions like these before. If they still don't give you an answer, ask “easy” questions about past experiences, make them talk about memories.

Have a talk about the roles at the interview – who does what during the walkthrough. Keep in mind the purpose of the walkthrough – also during.

Outcomes and findings

- The wishes for the hill (højdedraget) were more facilities like tree top cabins, swings, suspension bridges, paths
- Scarcity of benches make the few there are very popular and in great demand. There is daily competition of who gets to occupy them.
- Some experience feelings of unsafety when they get closer to the station for various reasons such as traffic connections that are not thought through, and “scary people”.

Walkthrough in Gregersen, May 21, 2021

Purpose

The purpose of the walkthrough was to let the group take us around the neighbourhood, let them show us around to their favourite spots, to make them talk about the area, to see what way they would lead us to the station, to listen to their opinions and observations of the neighbourhood and the spots they were leading us to. This would tell us something about their needs and desires for the neighbourhood.

Process

Interview guide

An interview guide consisted of these questions for the stops on the route:

- 1) The immediate reactions to the place: Describe this place to me, what do you see? What feelings does the place evoke in you?
- 2) The sensing of the place: What kinds of smells do they smell? What sounds do you hear? Are those nice smells and sounds?
- 3) The use of the place: What do you come here for, what do you use this place for? What are the elements that make you like the place, and why?
- 4) Desires and dreams for the place: If you could decide, what would the place look like? Which feeling would you like to have here?

It's important to strive for asking open questions, and to not introduce concepts such as “feeling safe/unsafe” (utryghed), “exciting”, “boring”. Let the participant use their own words.

Questions we would pose in the walk between stops:

- 1) How do you move around the neighbourhood? Do you do exercise, if yes, how?
- 2) What would make it easier for you to get around in the neighbourhood?



Figure 4.69 walkthrough with seniors

Tour description

The group consisted of 6 citizens aged between 65 and 85 years. Some of them are part of the board while others are family and friends. One had a disabled walker but was nonetheless as mobile as all the other participants. Everyone was of Danish origin.

We started by the community house (Beboerhuset) to explain the purpose and plan for the walkthrough. The plan was that we had three stops we wanted to go to and we would let the participants decide the route to these stops, where we could also improvise other stops in between. The three stops were:

1. “Højdedraget”
2. the Circus wagon at Kvarterhusgrunden
3. the station.

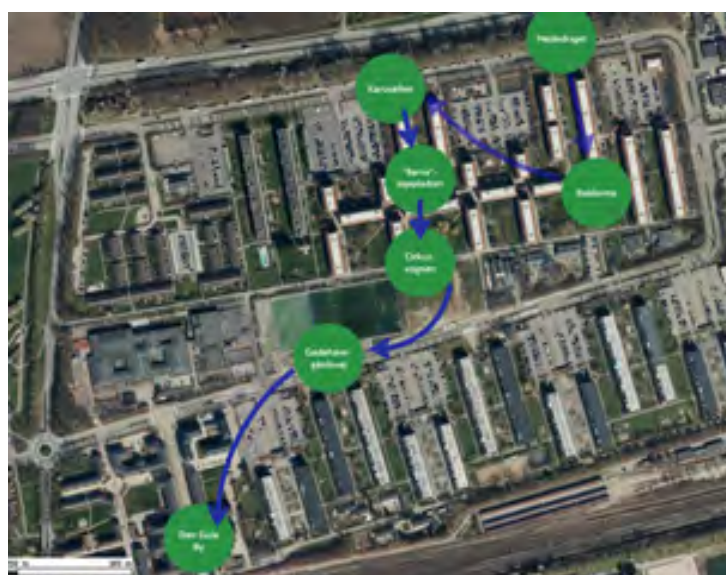


Figure 4.70: Route for walkthroughs

First stop was “Højdedraget”. This was not a place that they usually come to though some of them have been there to walk their dogs from time to time. They describe it as “disgusting and full of rubbish”, and a place with no clear path. Apart from that, there’s nothing to do there.

But they were very happy that the barrier kept out the sound of the highway on the other side, and that the greenery is a fine background for the neighbourhood. In the future they would like for the place to be integrated into the park, which is part of the development of the neighbourhood, but they are not sure what they want there instead.

On the way to the next stop, we talked about the plants and flowers that have recently been planted instead of grass. We understood that they are very fond of the flowers because they’re nice to look at and to pick for bouquets. Flower picking was a recurring theme for them. We also talked about the playgrounds and about how some of them are so popular that local kindergartens come and use them for day trips. They also mentioned that they are fond of the little hill that gives so much pleasure to kids, and sorrow at the prospect of losing the hill when the transformation of the neighbourhood gets underway

Arriving at the circus wagon, the conversation became even more focused on plants and greenery. One participant said that “it is like an oasis to be here”, and “it’s so, lovely to be surrounded by all the greenery”. On the subject of gardens, they were quite happy with the look that the interim gardens had, and clearly hadn’t considered that the gardens could have another form.



Figure 4.71: From the quarter house ground

By the circus wagon the subject of the forthcoming changes in the neighbourhood were mentioned. On the sides of the wagon posters with the master plan hang to inform the tenants about the new park and some demolitions of residences that will take place in a few years. We asked them what they thought of the drawings, and it became clear that only one of them could keep living in the neighbourhood, as all the others' homes were either being torn down or sold off.

By the roadside we were accompanied by a hare, which is not a rare sight in the neighbourhood. Walking along the road, we learned that they wish for more benches for the elderly, as the current

urban furniture isn't designed for leaning back or getting up when your knees hurt. They also wanted more trash bins but most of all they wanted the bus stop to be moved 200 metres as the current one had been moved as part of the new park.

We also learned that since there's no sidewalk on the opposite side of the road, people just cross wherever they want. And by the end of the park, arriving at den gule by (the yellow city), there is an intersection that poses a lot of problems for pedestrians and bikes. But none of them were phased and instead just crossed the road without a fuss, including the lad with the walker.

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Coming into the part of town called Den Gule By (the yellow city), the participants expressed how they simply didn't understand why anyone wanted to live in that part of town. This is quite interesting considering that their own part of town is the target of national interventions focusing on liveability, and demographic composition.

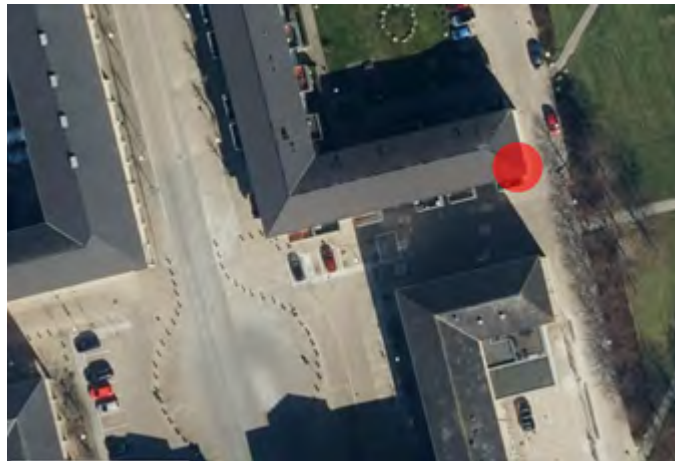


Figure 4.71: Urban space in the yellow city

The same thing was pointed out on the tour with the young kids some weeks before. Particularly the point marked with a red dot on the map was where everyone felt they had to be extra careful as there's no visibility from any of the sides.



Figure 4.72: Break on a bench in the yellow city

Stopping at the square they reiterated that they enjoy living in a place that is well connected by train and bus, but that the Yellow City itself is merely a place of transit and that they feel uncomfortable there. They underscored that they never wait for the bus more than a few minutes before starting to walk home by themselves, since it feels unsafe staying at the station.

Reflections

- This group of adults were very well reflected on the looks and feeling of living and walking in the neighbourhood.
- It's important to be prepared for the sensitive subject of demolishing residences, since everyone is touched by them directly or indirectly.
- It's a good idea to provide with snacks and/or beverage at some point during the walkthrough
- When walking from place to place, it's good to split the groups up so that the quitter participants can be asked directly about their experiences.
- Have a talk about the roles at the interview – who does what during the walkthrough. Keep in mind the purpose of the walkthrough – also during.
- Take pictures. They're good reference points for summarizing and pointing to the map.

Outcomes and findings

- The wishes for the hill (højdedraget) were to keep it as intact as possible so that it would continue to hold out car noise
- Very few benches and rubbish bins pose a problem for the users of the neighbourhood and the park in particular.
- Some experience feeling unsafe when they get closer to the station for various reasons: traffic connections that are not well thought through, and “scary people”.

4.4.2.2. Neighbourhood Survey – Assessing health and wellbeing of the local population

Sample Distribution, n = 291

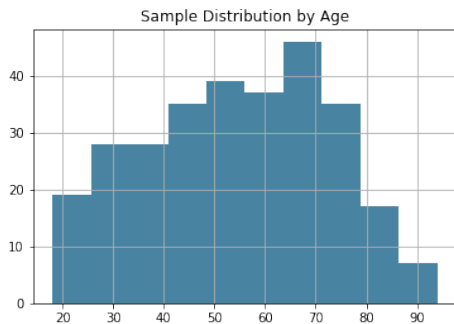


Figure 4.73: Education level by age

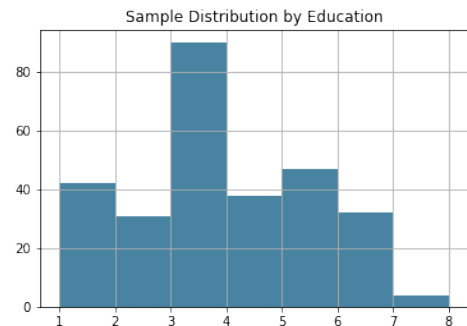


Figure 4.74: education level

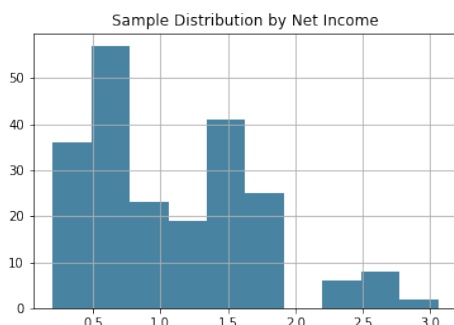


Figure 4.75: Net income in Denmark

↑ Education Levels

- 1: Basic school(Regular school)
- 2: Highschool (Studentexam/HF/HH/HTX/HHX)
- 3: Vocational education (erhvervsuddannelse)
- 4: Short education (below 3 years)
- 5: Medium (3-4 years / Bachelor)
- 6: Long (Masters)
- 7: Ph.d. or higher

← Net Income:

The average net income in Denmark of estimated 32.920,34 € per year equals 1.

Environmental Quality of Life

Measured with 20 different items (see below).

Scores add up to Environmental Quality of Life (Scale from 20-100)

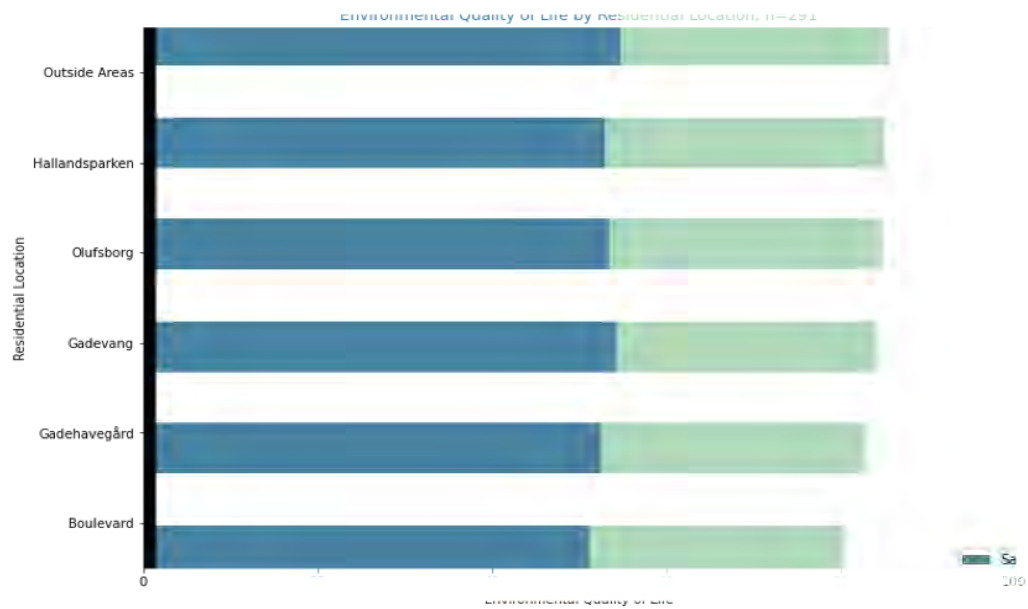


Figure 4.76: Environmental quality of life by residential location

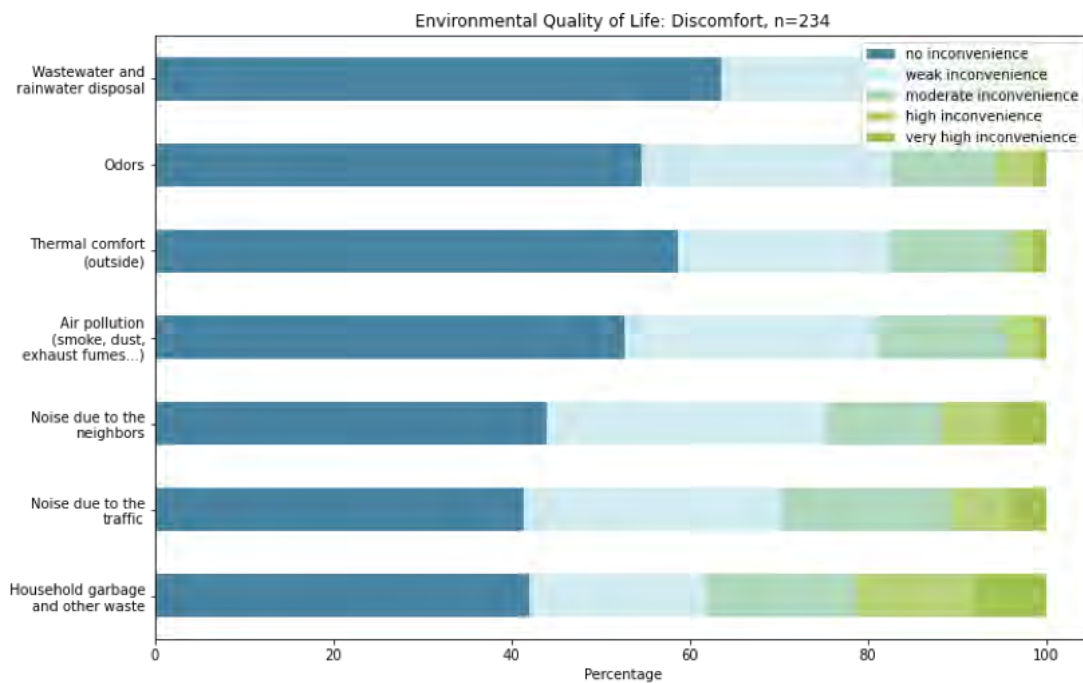


Figure 1Figure 4.77: Environmental Quality of Life, Discomfort

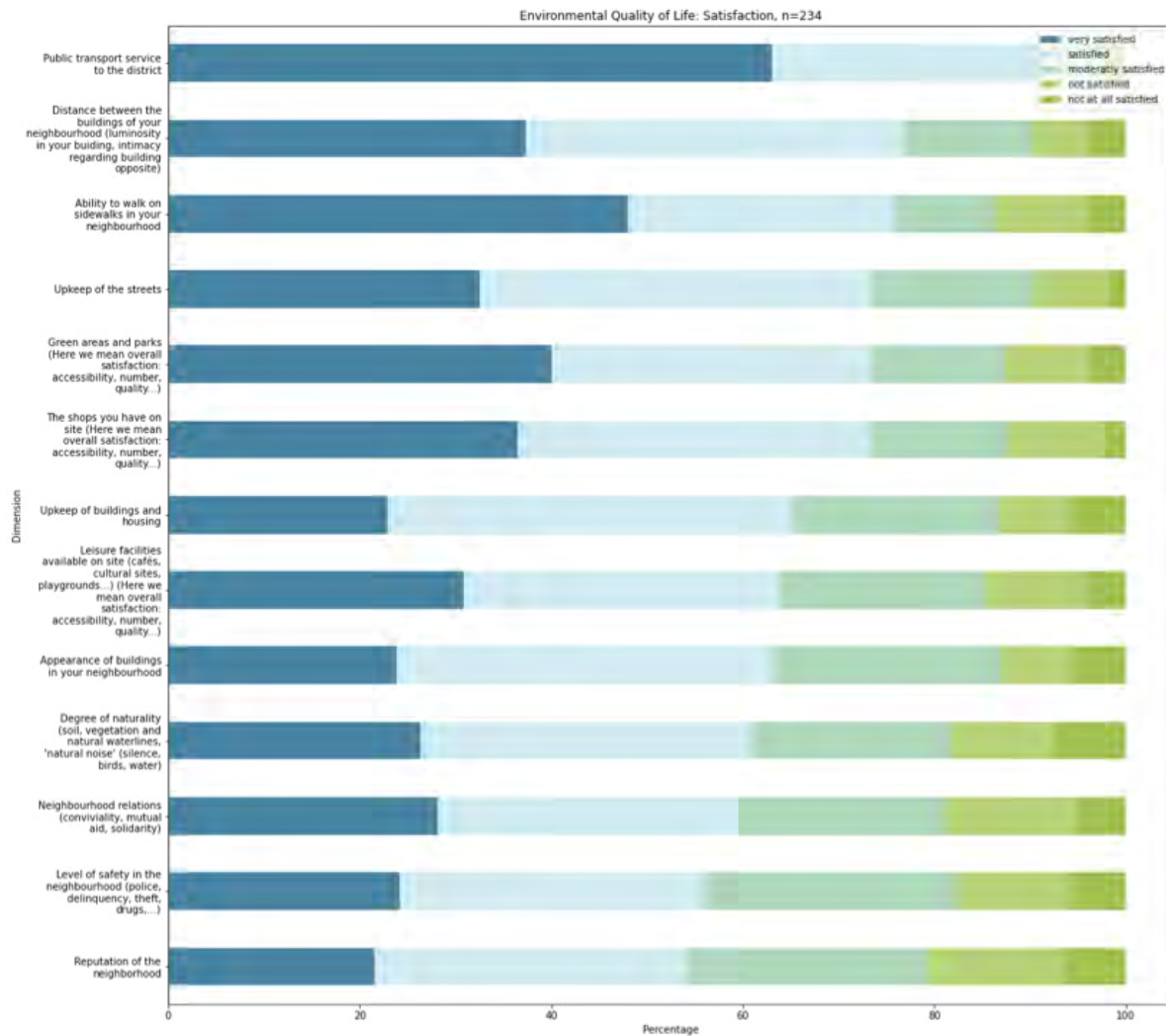


Figure 4.78: Environmental quality of life, satisfaction

Findings: Environmental Quality of Life

- No item scored below 50% positive respondents. The general environmental quality of Life can be considered high.
- Best rated are public Transport Services, urban design as well as items related to walkability
- The greatest potential for improvement is seen in the reputation of the neighbourhood, the level of safety, neighbourhood relations and in reduction of household garbage and other waste.
- Distributed by subspaces it becomes evident that the EQL from respondents outside the study area is generally rated a little higher than every subspace within the study area. Although the differences are small, the sub-areas dominated by ownership flats or rowhouses score higher than others.

Physical Activity

Physical Activity is measured in the dimensions of vigorous, moderate, and walking physical activity. Respondents were asked for frequency and duration in the previous week. Results are displayed as Metabolic-Equivalent-Minutes/Week (MET-Minutes/Week, MET minute is the amount of energy expended during a minute while at rest.)

Category 3 High: 7 or more days of any combination of walking, moderate-intensity or vigorous intensity activities achieving a minimum of at least 3000 MET-minutes/week

Category 2 Moderate: 5 or more days of any combination of walking, moderate-intensity or vigorous intensity activities achieving a minimum of at least 600 MET-min/week.

Category 1 Low: This is the lowest level of physical activity. Those individuals who do not meet criteria for categories 2 or 3 are considered low/inactive.

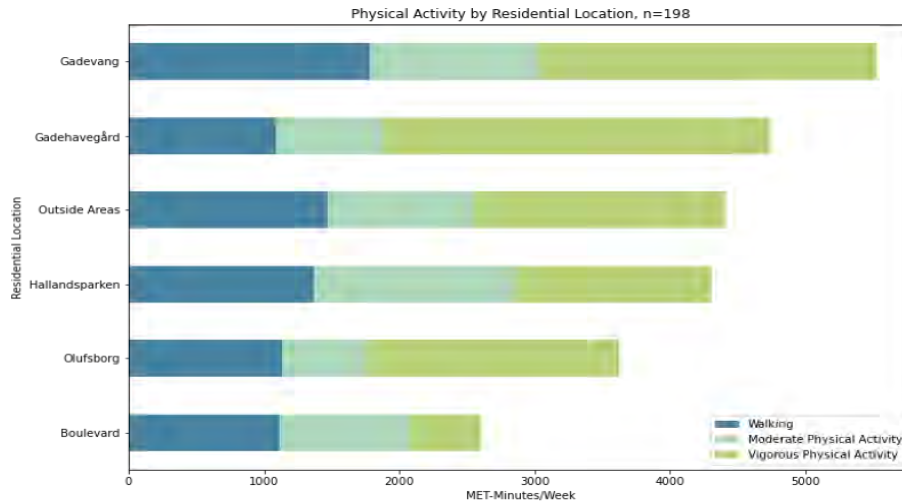


Figure 4.79: Physical Activity by residential Location

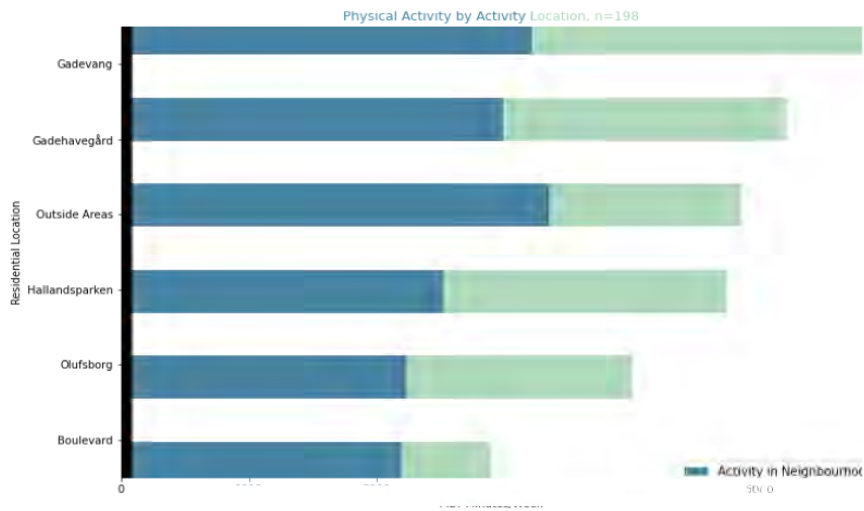


Figure 4.80: Physical Activity

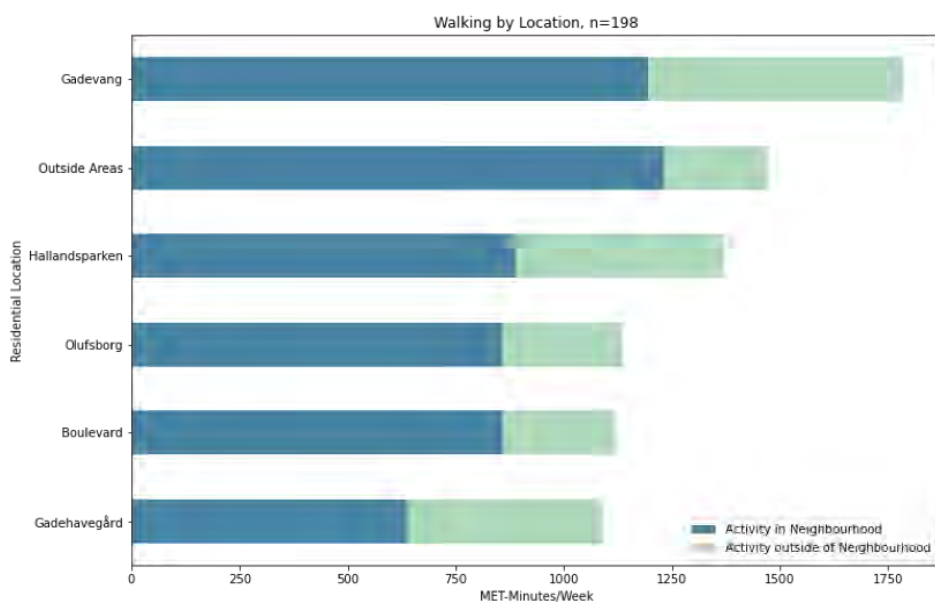


Figure 4.81: Walking by location

Findings: Physical Activity Findings

- In general, it can be stated that the residents on average are physically active (moderate-high)
- Distributed by subspaces highlights more active sub-areas like “Gadevang” and “Gadehavegård”. The sub-areas “Boulevard” and “Olufsborg” score significantly lower than other areas. Due to the sample size, it was not possible to look further at age and socio-economic indicators, so the results could still be subject to a large variance.
- For a significant amount of the desired physical activity residents seem to need to leave the study area.

Social Activity

Social Activity is measured in minutes per week. Respondents were asked for frequency and duration in the previous week.

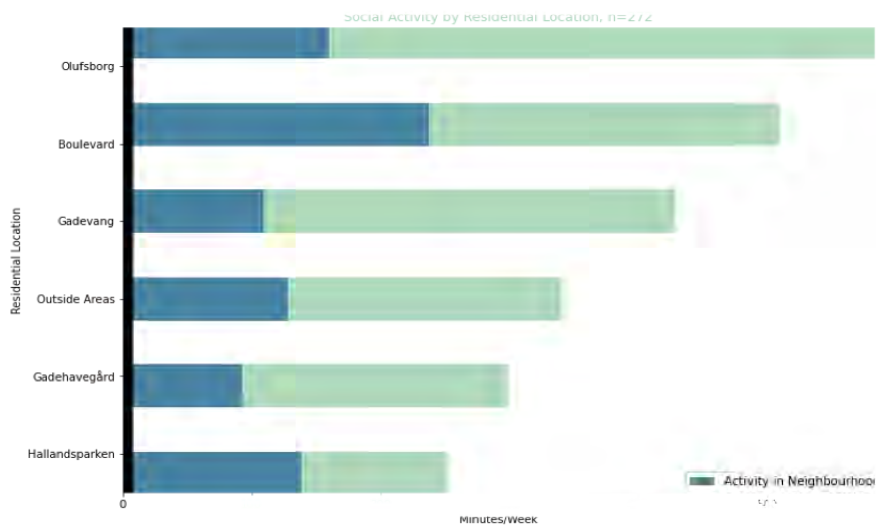


Figure 4.82: Social Activity by residential location

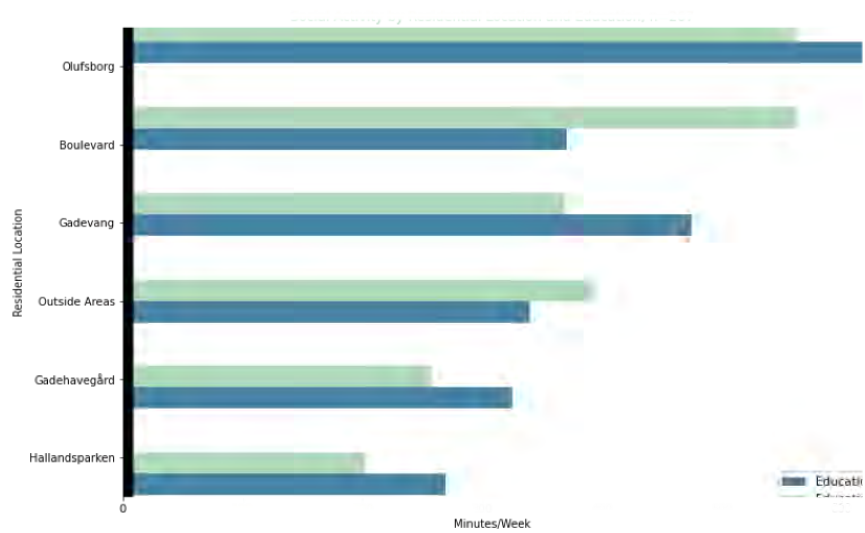


Figure 4.83: Social Activity residential location and education

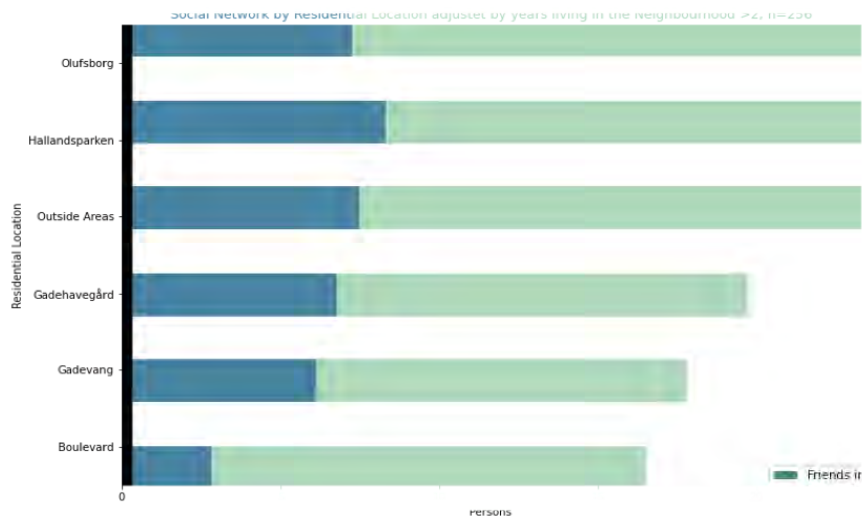


Figure 4.84: Social network by residential location adjusted by years living in the neighbourhood

Findings: Social Activity

- In general, a high amount of the social activity is performed outside of the neighbourhood, with the subarea “Boulevard” being an exception to the rule. This is plausible considering the ground floors with shops and services.
- The overall social activity in Olufsborg, Boulevard and Gadevang is significantly higher than in the outside areas.
- Hallandsparken has the lowest social activity with less than 4 hours a week. This might be explainable with the specific building typology of row houses and their private gardens.
- Adjusted by educational level it becomes visible how sensitive social activity reacts on socioeconomic indicators and thus the area-based results should be interpreted with caution.
- The social network in Olufsborg and Hallandsparken is in general comparable with the outside areas. The more anonymous rental structures of Gadehavegård and Gadevang reduce the number of names known in the neighbourhood. The shops and services seem to have an influence on the quantity and quality of the social network in the area of Boulevard.

Wellbeing

Wellbeing is measured in the dimensions of Emotional, Social and Psychological Wellbeing.

- Emotional Wellbeing consists of: Self-reported Happiness, interested in life, satisfied with life (MHC-SF Items 1-3)
- Social Wellbeing consists of: Self-reported Social Contribution, Social integration, social actualization, social acceptance, social coherence (MHC-SF Items 4-8)
- Psychological Wellbeing consists of: Self-reported Self-acceptance, environmental mastery, positive relations with others, personal growth, autonomy, purpose in life (MHC-SF Items 9-14)

Together they form a global score of self-reported wellbeing (Scale 14-70)

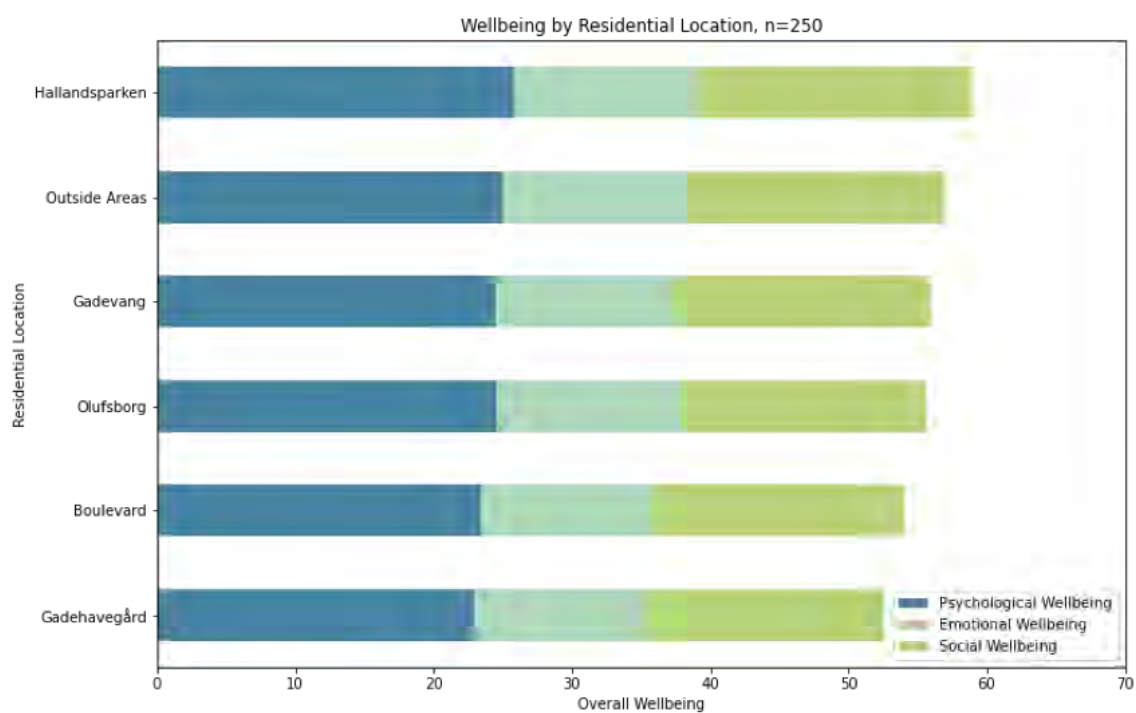


Figure 4.84: Overall wellbeing

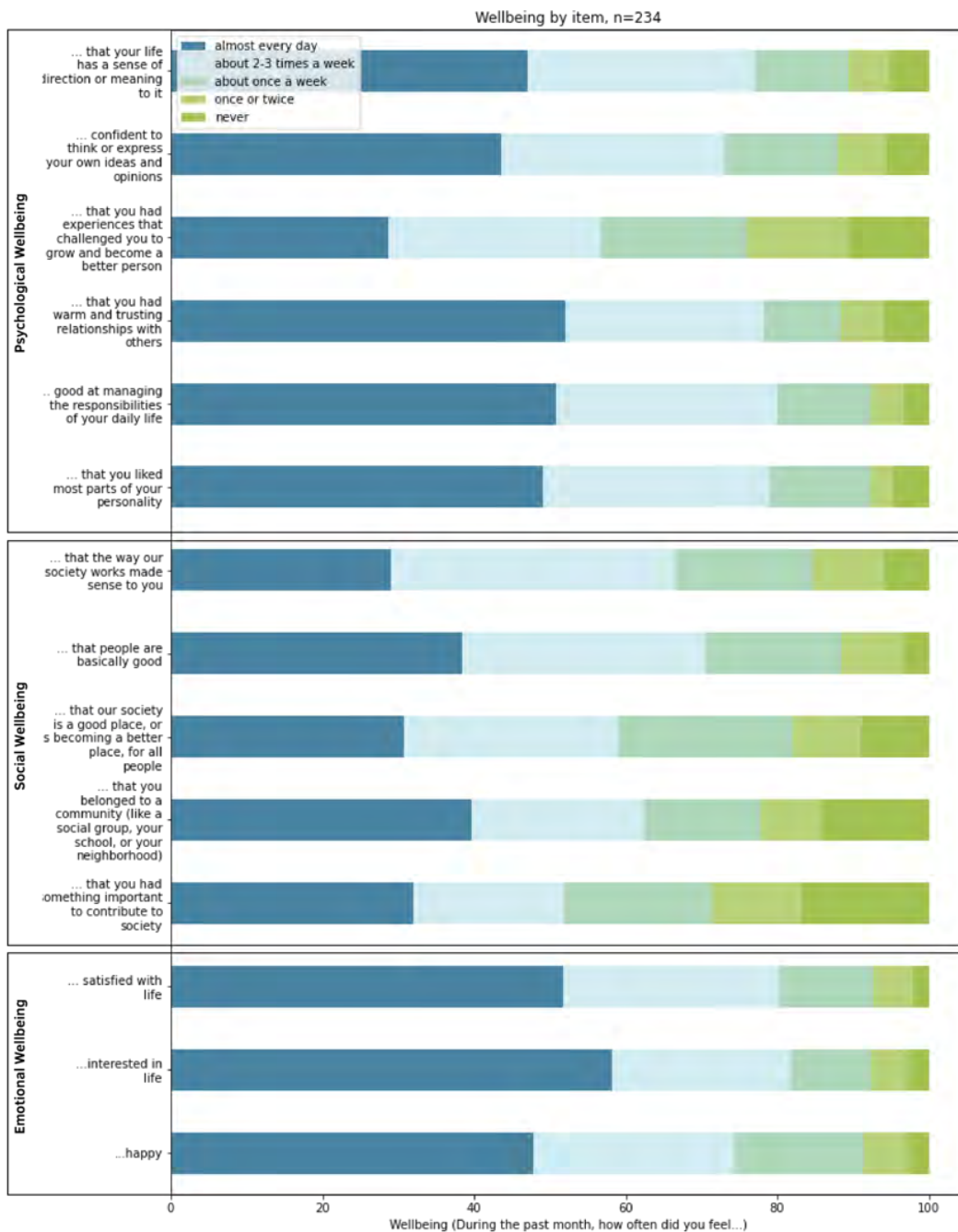


Figure 4.85: Wellbeing by item

Findings: Wellbeing

- In general, the wellbeing of the residents in the study area scores lower than the outside areas with the subarea Hallandsparken being the exception. The areas Gadehavegard and Boulevard score the lowest.
- While Emotional and Psychological Wellbeing score rather high, social wellbeing is significantly lower.

Health

Unidimensional perceived health (5) very good, (4) good (3) fair, (2) bad, (1) very bad

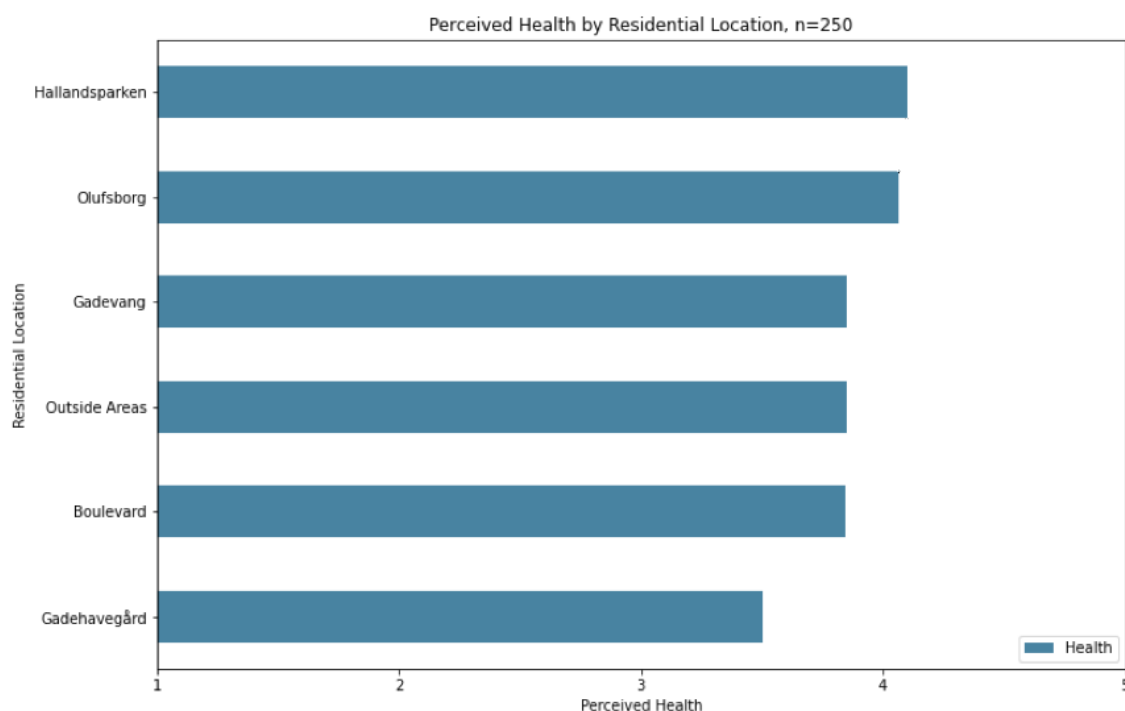


Figure 4.86: Perceived Health

Findings: Health

- In general, the health status is assessed as good (4). Only Gadehavegard is rated noticeably lower at 3.5.
- Especially perceived health reacts very sensitively on age and also on socioeconomic indicators. Therefore, the spatial findings should be interpreted with caution. An additional adjustment by age and socioeconomic indicators is not possible due to the small sample size.

4.5 Nature based solutions

In the URBINAT project, Nature-based Solutions (NBS) are divided in a four-fold typology: Technological, Territorial, Participatory, and Social and Solidarity Economy. This section will describe the experiences of Høje-Taastrup in regards of developing and implement NBS projects.

Even though there are no strategic focus on NBS, many of the city's programmes, initiatives and cooperations falls within URBiNAT's NBS typology. With regards to social NBS, Høje Taastrup has for many years been partial to the social housing plans in social housing areas. In this section we will, among others, present several actions taken in the social housing area Charlott kvarteret.

Name of NBS: Urban co-creation 2640 Charlottkevarteret

Type of NBS: This section will describe several of NBS implemented in the neighbourhood Charlottkevarteret. Each NBS will be described under its

Charlottkevarteret is an earlier deprived housing area which went through a comprehensive co-creation process facilitated by the urban development agency Supertanker. The focus for the project has been to meet the destructive actions with inclusion, with the belief that if people build things themselves, they will also take care of it. The first project was to refurbish the project office.

Name of NBS: The circus wagon

Type of NBS: Technical, territory and participatory



Figure 4.87: The circus wagon under refurbishment



Figure 4.88: The finished circus wagon

Supertanker chose a somewhat untraditional project office for the purpose of developing a mobile, flexible and poetic space where the inhabitants and project employees could meet in an informal way. The choice fell on an old circus wagon, which became the first concrete co-creation project. The first few nights the circus wagon fell victim to vandalism. The answer to this problem was to involve a group of young boys in the refurbishment of the wagon. In cooperation with a local business called Spæncom, the boys contributed to create a nice and well-functioning office space.

This journey of implementing new NBS started with the co-workers from the circus wagon asked the neighborhood's third grade pupils about their dreams for their neighborhood. This was the kickstart of a long co-creation process and mapping of the children's universe. The children went on adventures in the neighbourhood with maps, cameras, papers and markers along with the mayor Michael Ziegler. The mayor recorded the whole experience with a camera. For the next step in the process, the children curated an exhibition in the neighbourhood with all their creations. This process ended in several NBS being implemented in the neighbourhood.

Name of NBS: The bonfire place

Type of NBS: Territorial, participatory



Figure 4.89: Baking at the bonfire place

One of the outcomes from the dream tracks was the implementation of the bonfire place. It was built by both children and grownups together. This is a place for gathering and is a very popular hangout in the area. It is especially popular among some of the women in the neighbourhood, who uses it for baking durum bread.

Name of NBS: The Pavilion

Type of NBS: Territorial, technological and participatory



Figure 4.90: The pavilion on opening day

The pavilion is one of the ideas that the inhabitants themselves has initiated and implementer. The idea came because a group of inhabitants wanted a nice place to sit with shadow and shelter, while they watched their kids play. The 8th grade of the local school was involved in the building, and as a math assignment they calculated the lengths, width and angles for all the elements of the pavilion.

Name of NBS: Plant a tree and plant boxes

Type of NBS: Participatory

The plant a tree project came to life because a group of citizens was granted funds for more green plants in the neighborhood. They got the trees from a local plant school and organized the planting process. Children and grownups helped each other with the digging, and every child got their own tree with their name on it.

Another greenifying activity was the plant boxes. All generations were gathered for the painting and planting.

Name of NBS: The trash cans

Type of NBS: Technological, participatory



Figure 4.91: The trash can project

As a part of a street art program for 13-17 year olds in the neighborhood, a line of new trashcans was developed. This is a very good example of youth joining forces to solve a challenge in their own neighborhood in a creative, sustainable and humoristic way. It started out with the question; If you could change something in your neighborhood, what would it be? The group of young people saw that there was a challenge with people throwing trash on the ground. They wanted to solve this by making trashcans you want to use. The result was these very creative and decorative cans made by locals using only recycled materials.

Name of NBS: Project “Eat your municipality”

Type of NBS: Territorial and social

This municipal initiated project strives to educate citizens in how to harvest from the nature in their local area. There are plenty of edible ingredients for your cooking, if you know what to look for. In Høje Taastrup you can walk in diverse green areas and find plants, berries, fruits, herbs and mushrooms. On the municipal website you can find all necessary information and maps over different areas where you can find these natural treasures. There is also an overview of seasonal variations. The project has several events over the year to involve and educate citizens in local harvest. In this way, citizens obtain a better connection to their local areas, by visiting new places and finding new values.

Name of NBS: Sengeløse Grusgrav (Old gravel pit turned into recreational wildlife park)

Type of NBS: Territorial



Figure 4.92: Sengeløse Grusgrav

Sengeløse is an old gravel pit turned into a wildlife area for all citizens of Høje Taastrup. The area is currently a very popular green oasis in the municipality, but there are still potentials for more wildlife. To kickstart a new project for further development of Sengeløse, all citizens were invited to a picnic and to bring their ideas. The ideas need to both benefit citizens and the wildlife. Suggestions reached from puddles for toads to an outdoor kitchen.

In relation to the project, it is possible for citizens to join a think-tank facilitated by the municipality. Two times a year the thinktank arranges workshops where citizens get the opportunity to comment on the plans for the new wildlife area and bring their ideas. This project is one of the most important contributes from Høje-Taastrup municipality for the contest of becoming “Denmarks wildest municipality”.

Name of NBS: The Neighbourhood Mothers

Type of NBS: Social and economical

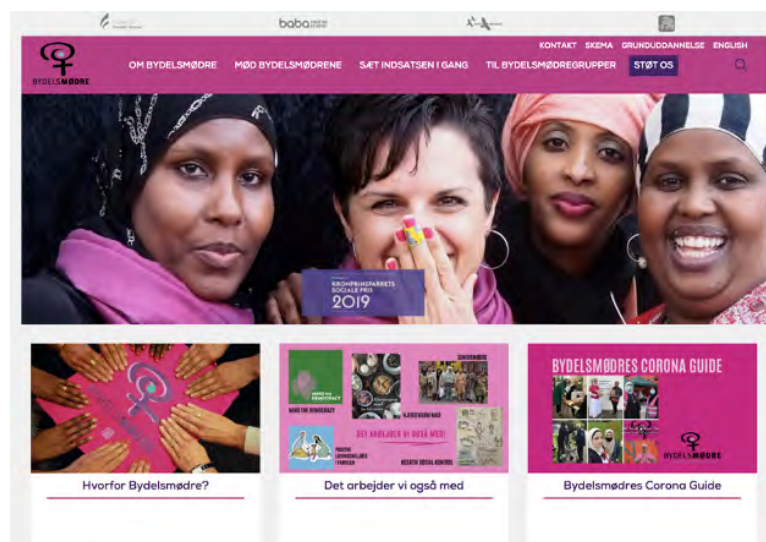


Figure 4.93: The neighbourhood mothers

The neighborhood mothers is a network of women, mostly from an ethnic minority background, who support isolated and vulnerable women. By listening, conveying important information and building bridges between the women and their surroundings, Neighborhood Mothers give hope and change the lives of other women. The help they provide gives the women strength, so they can help themselves, their children and their family.

4.6 Baseline for the development of the healthy corridor

URBINAT comes at a time when Gregersens Neighborhood and the whole of Høje Taastrup municipality is under radical transition. The projects are many and they can at times happen so fast that connectivity between neighborhoods is underprioritized. The development of the city also happens in different speeds and with vastly different types of investors and financial backing. South of the central station, the development is mostly so-called green field and transformation of the enormous City2 mall into something more contemporary in design and feel. Here, the pension funds flock to buy land and manage to sell apartments before a line has even been drawn.

North of the central station, In Gregersen, the development is happening under more controlled circumstances and not as fast as to the south. Even though the developers are present and are contributing to the transformation in Gregersen, the investment possibilities are fewer. This imbalance may well result in the entrenchment of the current socioeconomic situation and differences between north and south of the station. And therefore, URBINAT might make a difference.

By introducing the concepts of healthy corridors and NBS, URBINAT is helping stimulate the interaction of citizens between neighborhoods. Høje Taastrup is already working on stimulating the physical interconnectivity between north and south, e.g. by establishing a BRT that can easily move people by bus. But there haven't been any serious attempts to make the connection easier for pedestrians or bicyclists or for that matter to make the path itself into a destination in its own respect.

With URBINAT, Høje-Taastrup is able to seize the opportunity that exists right now with developments going on north and south of the main station. The three intervention points that have been presented in this report are all pivotal spots on the future knowledge axis and each spot is ready for place making. In the Yellow City, where the central station is located, the board of land owners have, with the help of the municipality, just finished making a design guide that points to specific places to be developed and landscaped in order to stimulate the making of a city that emphasized comfort, safety and interaction. URBINAT, in turn, provides the opportunity to take those design thoughts and turning them into actual actions with the help of citizens and land owners.

Similarly, in the geographical center of Gregersen Neighborhood, where the community house is going to be built, there's to be a process of shaping the entire grounds surrounding the house. And finally, in the northernmost part of Gregersen, the new park will be developed, and the noise barrier opened up, so that Gregersen is hinged onto the neighboring parts of the city both north and south.

All three intervention points, and their integration into the knowledge axis, is helped along by the fact that URBINAT is there to supply the conceptual and methodological framework. The citizens and land owners are part of the community of practice (CoP) and are already partaking in exercises that will develop each point. The NBS resulting from these processes have already been funded by the municipality and are to be completed by the end of 2023. And last but not least, the healthy corridor, as a collection of plans for connectivity is being realized only because the framework of URBINAT asks the local actors to think in those terms.

4.7. Conclusion

The local diagnostic has had several impacts on the way we work with urban planning in the Gregersen neighbourhood. Firstly, it has been a good exercise having to compile all prior master plans and communicating them to our local partners. With help from DTI we gradually became better at conveying the story of the neighbourhood and this eventually resulted in some very interesting and useful feedback from SLA.

Secondly, the data we collected in house and through the survey has proven interesting and relevant. It corroborates our assumptions about the Gregersen neighbourhood as a deprived neighbourhood with significant challenges and underscores the need to act on them.

URBINAT can help initiate the necessary change by guaranteeing the involvement of a broad section of the local populace and by insisting on the healthy corridor as an elementary tool to open up the neighbourhood.

5. Nova Gorica (and Gorizia)

5.1. Introduction

The city of Nova Gorica has a relatively short history. Its foundation dates to 1946, when the newly born Yugoslavia established a new city as a response to cut off of its population related to the new border designed after the end of the Second World War and dividing the country to Italy, thus cutting out the city of Gorizia and its surrounding. Suddenly an area of a bilingual community was divided into 2 different areas, with strict restrictions in the crossing of the border. Such division increased, along the decades, the frictions between the two populations that were also reflected in the socio-economic structures. The border favoured a very peculiar difference in specific economies:

- The city of Nova Gorica was able to increase its international attractiveness and specific economy by developing a Casino industry;
- The city of Gorizia became a focal national and international point for diplomacy and defence, considering that Yugoslavia was considered the beginning of the Eastern bloc.

A distinctive character between the cities was, beyond language and societal administration, the architecture and urbanism. The city was completely planned from scratch according to a main plan designed by the important rationalist architect Ravnikar, that was foreseeing regular building blocks separated by community, public parks, and lands, fully available to the entire population, thus minimising the possibility of private land. The urban development of the city in the following decades respected this organisation, until the collapse of former Yugoslavia and the establishment of the Republic of Slovenia in 1991. The city of Nova Gorica has been characterised in the recent decades by a completely new type of development, due to the drastic change of the socio-economic tissue of the entire area: Such changes mostly happened between 1991 and 2007, leaving after 2007 and the economic crisis of 2008-2010 a completely new scenario of socio-economic depression on both sides. Nova Gorica and its surrounding Slovenian municipalities have slowly developed a new market economy, taking advantage of the competitiveness on the Italian market due to the lower market prices, while Gorizia has lost its market attractiveness as well as part of the population employed in the defence and diplomacy, sectors no-more relevant in the national (Italian) and international perspective. Both cities are presently working jointly to solve the criticalities and disparities and this effort was institutionalised by the establishment in 2010 of the EGTC, European Group for Territorial Cooperation, among border municipalities of Gorizia, Nova Gorica and Šempeter. THE GO-EGTC is presently focusing on a common health services system and on the design of common biking routes and sport facilities. Recently, in December 2020, the two cities, in a twinning effort, were awarded as Future EU Culture Capital 2025.

The situation for the application of URBINAT in Nova Gorica is relatively different from the other cities in the partnership. **The city is small, 25.000 inhabitants plus the 35.000 of Gorizia, does not have specific criticalities such as criminality, social injustices, etc., but has a strong need to reconnect people and the history of the area. In this respect the corridor of URBINAT should act as a socio-cultural catalyst for the populations of both sides, enhancing the cultural and environmental underused spots along the border. The use of the Koren stream as focus of the**

corridor is emblematic considering that water is always an attractive element, which was in this case forgotten regardless of its centrality.

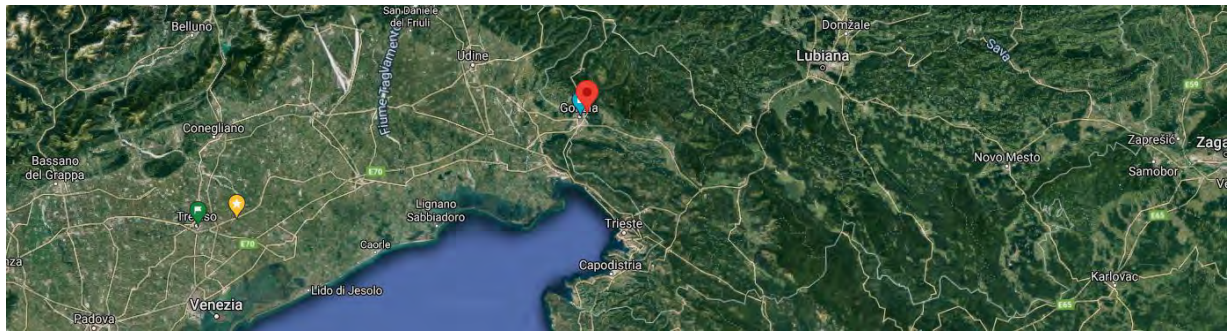


Figure 5. 1: Localization of Nova Gorica in Google Map

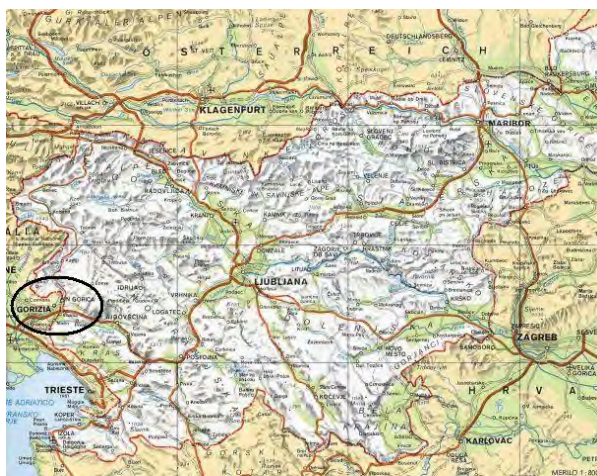


Figure 5. 2: Localization of Nova Gorica in respect to Slovenia

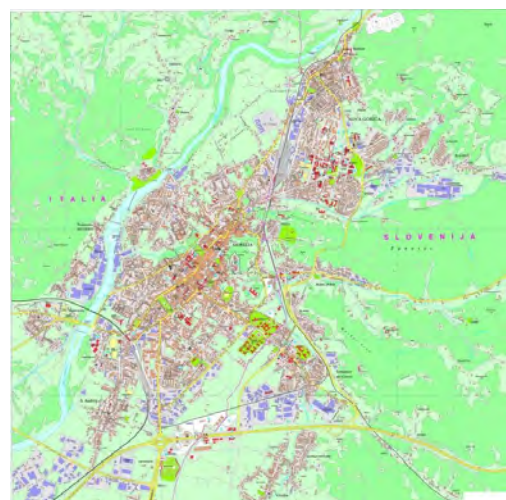


Figure 5. 3: Map of Nova Gorica

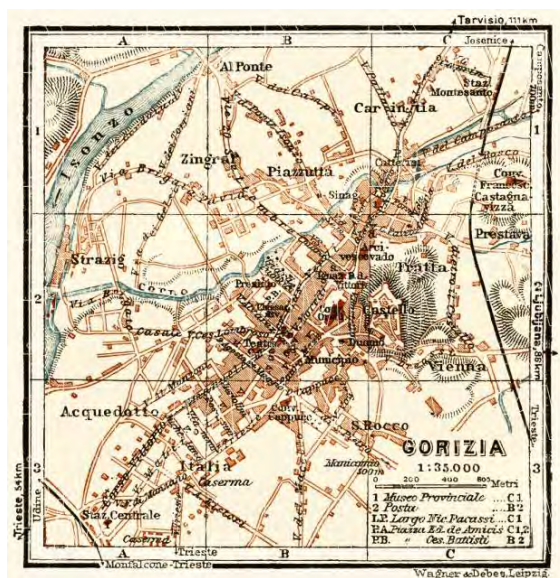


Fig 4: Town plan of Gorizia in 1929 showing the path of Corno. Wagner & Lebes Leipzig



Figure 5. 5: Town plan of Gorizia in 1944, before the construction of Nova Gorica (should be on the right side).



Figure 5. 6: Picture of the first days of Nova Gorica, where almost nothing was in place apart from the old furnace.



Figure 5. 7: The Train station displaying the new country's foundations and mission. The border and its fence is visible



Figure 5.8 : Postcards of the first constructions of Nova Gorica. Architectures



Figure 5. 9: Postcards of the first constructions of Nova Gorica. Kidričeva Ulica and the Municipality building on the right.



Figure 5. 10: Photo of the citizens of Nova Gorica organised as “mladinske brigade”, teams of youngsters, digging the Koren stream as sewage canal



Figure 5. 11: Image of Nova Gorica and the corridor area from the hill of Kostanjevica Monastery in the early years of the city



Figure 5. 12: Picture of Nova Gorica today, displaying the motto of the Culture Capital 2025



Figure 5. 13: View of the city from Sabotin

Why the city is a follower runner

The erasure of the border had implications on Nova Gorica and its region, as well as on Gorizia, the Italian city: both for decades had been basing their economies on the border itself. Both cities are reinventing themselves, partly merging as a unique metropolitan settlement. Gorizia is an old town, with historic buildings and streets, museums, etc., while Nova Gorica is the green, sportive, leisure town devoted to creative industries and economic dynamism. People are daily commuting, from one town to another to get different offers and experiences: Nova Gorica is the green sport town, Gorizia the old, heritage town. In this perspective the Municipality proposed the Koren stream as a case study, looking at the experience of the capital Ljubljana, where the inner river was enhanced and requalified to become a constant, leisure presence in inhabitants' lives. The stream, recently cleaned and purified, is crossing a green part of the town, towards Gorizia and the border and in the proximity of some important historical and heritage assets, as the Panovec Forest, the Kostanjevica hill and monastery, the Rafut Villa down to the castle of Gorizia and back through the old city centre and the Jewish ghetto. Nova Gorica applied as a follower because, although some NBS practices are still in place, it wanted to give value to the stream and its water potential merging the cities, thus acting as a social connector, by using socio-cultural-environmental solutions for a safe use of the cities. The adoption of such a corridor would permit to valorise some cultural assets and to give back the Koren stream to the citizens as a resource for leisure and well-being.



Figure 5. 14: The Cultural Corridor imagined in the application form of URBINAT

The envisaged cultural corridor in Nova Gorica and Gorizia is in part different from the others planned in URBINAT. First of all, it does not address a troubled neighbourhood, given that these are lacking in this urban context; secondly it is meant to reconnect some neglected, underused cultural areas of the city; third it insists in one of the greenest part of the city, which is though very scarcely “owned” by citizens. The design of the NBS in place was not yet given, but they should merge

circular economy and territorial NBS mostly, finding spots of sociability and leisure along the Koren stream and across the border.

In this perspective, the corridor is meant to increase the local biodiversity, by implementing actions capable to improve the presence of the stream as natural element; to connect cultural spots by means of safe and pleasant pedestrian and riding paths; increase the educational and social value of the area by taking more aware and inclusive intergenerational groups of people, especially from both side of the border; push a local collaborative activity to monitor the environmental quality of the city.

Map of the study area in relation with the city

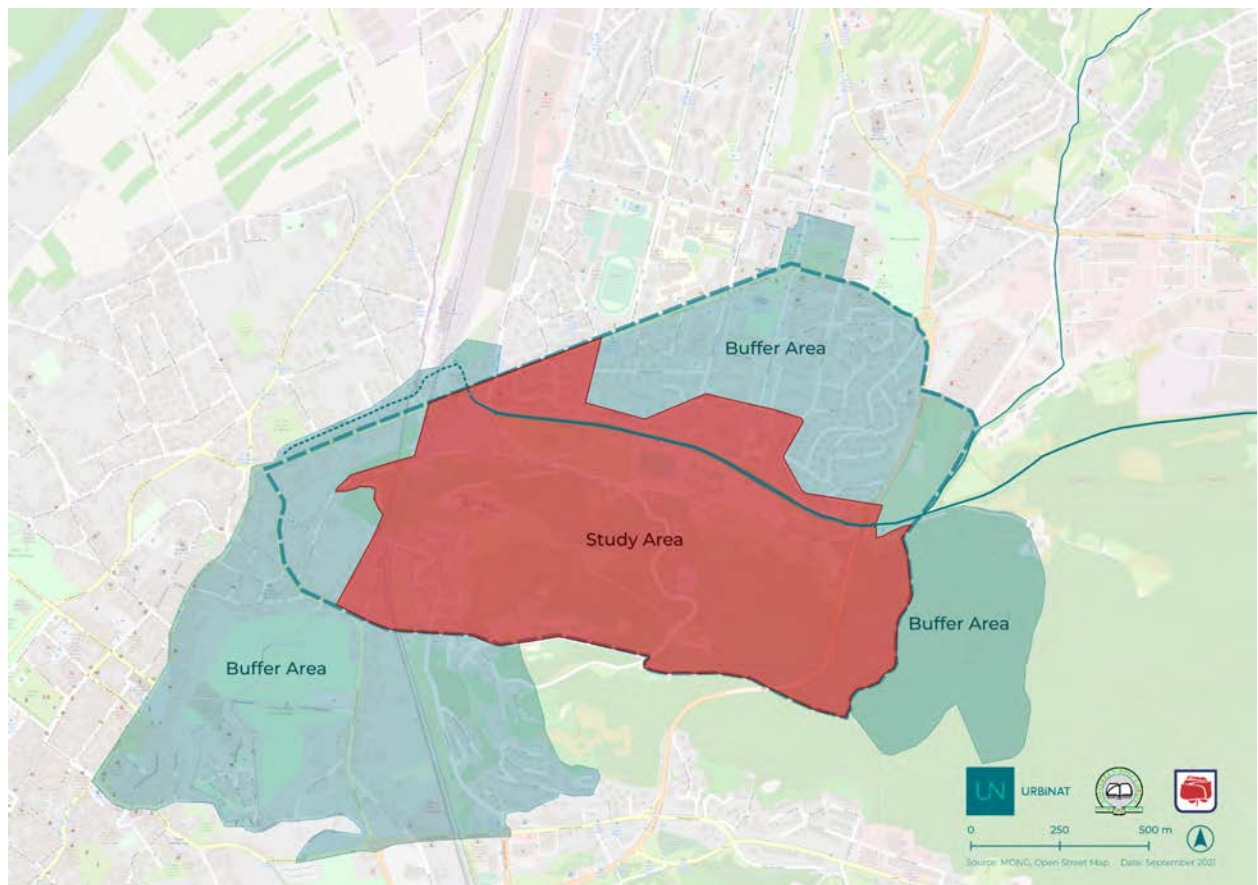


Fig. 15: The area of the corridor and its surrounding, buffer area

This Map of the study area was produced using the official cross border map and selecting the intervention area with the buffer zone. The map puts in evidence the stream Koren, the main area in red where green and cultural resources are located, as well as the other relevant area of future intervention in green.

Reasons for the selection of the study area. The study area initially selected as suggested by the Municipality of Nova Gorica is the Koren stream. The purpose was to revitalise a neglected part of the city, very green, and increase the use by inhabitants, similarly to what happened in Ljubljana along the Ljubljanica. The further development of the corridor derives from the need to give value to other cultural spots in the area that are underused, such as the Kostanjevica hill, the path through the Rafut Villa and other pedestrian ways towards Gorizia centre and back.

Why is it considered a deprived area? The area of the corridor cannot be considered deprived, unless for its underused potential. It is one of the greenest of the urban agglomerates, with the presence of a steamed water that in other cities would have been better valued and valorised. Along the Koren several “socialist” housing blocks are present, but they are very well valued by the population and their inner spaces are of high quality. They are part of the history of the city, which includes an important identity in the social cooperative work (Nova Gorica was built by people..), with the inclusion of the housing stock, the main buildings, infrastructures as well as parks and planting.

Local and regional authorities involved and their roles/responsibility. The present management of the corridor involves the city of Nova Gorica. However, considering its cross-border nature, also the city of Gorizia has been alerted and partly involved. Other stakeholders that may have a stake, depending on the degree of interaction/contribution:

Primary stakeholders Have direct legal influence on the site	Secondary stakeholders Have medium influence on the site for their mission or dimension	Tertiary stakeholders Have small influence on the site but should be taken into consideration
Municipality of Nova Gorica	University of Nova Gorica	Local primary and secondary schools (Osnovna Šola Erjavca)
Slovenian Water Agency	Institute for forestry Slovenia	The student house along the Koren (Dijaški Dom and Studentski Dom)
Slovenian Environment Agency	Institute for Water of the Republic of Slovenia	Citizens of the area and the city and their organisations
Slovenian Inspectorate for Environment and Spatial Planning	GO Borderless	XCenter, centre for Creative practices
	IGCT Gorizia, Nova Gorica and Šempeter	Citizens affected by works on the area (i.e. new interface, change of landscape, removal of community gardens for regularization, etc)
Municipality of Gorizia		

Table 5. 1: Preliminary list of local stakeholders, divided per primary, secondary and tertiary, as per man. Plan practice.

Local community groups, enterprises and academics involved and their roles/responsibility. So far, the groups involved in the action for the creation of the corridor have been the Municipality of Nova Gorica and the University of Nova Gorica, that selected a task force made of Ana Kobe Tavčar, Meta Škvarč, Marco Aciri and Saša Dobričić. Other organisations or groups are going to be involved if the COVID-19 situation will permit, especially the local citizens group, the local school, the newly established office for the CultureCapital2025 named GOborderless, the RRA, Regional Development Agency. Additional members of the task force are going to join.

Previous experience with international cooperation. Both the city of Nova Gorica and the University of Nova Gorica have good experiences in EU funded and international cooperation projects. In addition to that we should count RRA and EGCT Office. Some of these projects were focused on the topics of the URBiNAT project, such as Praticons, SUSTCULT, CLIC, Gotrawama, etc.

Strategies for international replication. The concept of the corridor in Nova Gorica is taking an important cultural focus. It insists clearly on the valorisation of natural and cultural assets that are presently underused along the corridor. This focus allowed the University of Nova Gorica to test a potential application of a cultural corridor in the city or Rijeka, that is a partner in another EU funded Horizon2020 project named CLIC. Below is a map used to define the corridor and its objective. Its description is fully available in the following article, <https://www.mdpi.com/2071-1050/13/8/4497>



Figure 5. 16: Representation of the cultural corridor designed in Rijeka under the CLIC project. The corridor is partly inspired by URBiNAT, through introducing the additional constraint of Circular Economy principle for the management and governance of changes in the Historic Urban Landscape.

Strategic challenges of the city

The city is constantly looking for new economic opportunities after the break of the border. This is common between Gorizia and Nova Gorica. Their policies are partly connected, as follows:

- achieving a common health system;
- becoming green and sustainable cities in the long run;
- become cultural attraction in the future, related to the CultureCapital2025 award.

The medium-long term achievements are supposed to offer new employment opportunities to the urban area. The Cultural Sector, related to the tourism industry, are evidently of utmost importance.

5.2. The city

Location in the country

Slovenia's administrative structure is made of National Government and Municipalities. Regions are only statistical. Nova Gorica is located on the western border with Italy and is the reference for the Goriska Statistical Region. The pictures below represent on the right the statistical region, with the red spot where Nova Gorica-Gorizia are, on the left the Slovene administrative division with municipalities, with the red spot for Nova Gorica.



Figure 5. 17: The Statistical regions of Slovenia



Figure 5. 18: The municipalities of Slovenia

Area of the city - Nova Gorica has an urban area of 3.49 sq-km. Gorizia has an urban area of 41 sq-km.

Aerial view of the city with administrative boundaries



Figure 5. 19: The borders of the city of Nova Gorica. This picture is taken from google, with the delimitation in red showing the borders of the municipality.

Brief history description

Nova Gorica, the town on the border to Italy, was founded only after the end of World War II. According to the 6th Paris Peace Conference the town of Gorica/Gorizia belonged to Italy, and thus a substantial part of the Goriška area, the Soča Valley and the Lower Vipava Valley lost its centre.

The population in the extensive surroundings of the present-day town started many thousands of years ago, proof of which are some significant archaeological sites.

The idea of a new centre of the Goriška area started to turn into reality in autumn of the year 1947 by the agency of a special committee led by Minister Ivan Maček. The urban plan for the new town was elaborated by the architect and town planner Edo Ravnikar. The foundation stone for the construction was laid on 13th June 1948. Youth work brigades from all over Yugoslavia started to build the new town. Six blocks of flats, the so-called “Russian blocks”, the Town hall and the multistorey building known as »Nebotičnik - Sky-scraper« were the first buildings of the town. Gradually bigger housing areas, other new buildings, the Nova Gorica Cultural Centre, and the department store »Trgovska hiša«, as well as the social centre of the town of Nova Gorica developed.

The architect Ravnikar's idea and design of the town has been frequently changed during the fast expansion of the town. Of the initial plan of a “City in a park” only about two hundred species of local and exotic trees and shrubs are preserved, which is without any doubt a noteworthy peculiarity.

At the end of the 19th century and in the first half of the 20th century the Goriška area became known also for some places where certain crafts developed. The trade started to bloom due to the favourable conditions of extraction and abundance of raw materials necessary for the production. The traditional crafts of the countryside of the Goriška area that contributed to the development of the industry of Nova Gorica after World War II, include the joiner's trade in Solkan, the blacksmith's workshops in the Čepovan area and Lokovec, the brick production in Bilje and the masonry in Renče.

(Text taken from official tourist office Nova Gorica, <https://www.novagorica-turizem.com/eng/nova-gorica-en/Brief-history/>)

Recent developments of the city

The city has developed strategic documents on many fronts, from transport (reduction of polluting cars, of cars and enhancement of biking network) to disability (improvement of accessibility to all part of the city), to environmental quality. These are partially matched by the ones of the city of Gorizia, which is insisting on greening (but peripheral parts), on urban built quality, on cultural development, but with scarce lines of interventions on pollution, reduction of inner car transportation, etc. The recent award of Culture Capital 2025 may play an interesting role in joining the efforts on similar interventions. Certainly, the two cities, thanks to the IGCT, are focusing on similar policies for health management and low impact mobility, especially by investing on biking trails, although Gorizia is partly behind in this perspective.

5.2.1. Territorial description

5.2.1.1. Climate and Urban Environment

Gorizia (thus Nova Gorica) was historically chosen by the Austro-Hungarian Government as one of the main tourists, Mediterranean places for summers, within the territories of the Empire. This was

due to its favourable climate conditions. The following table shows the average values for different parameters in the area, which is applicable per similarities to Trieste in Italy, having a northern Mediterranean climate (hot summers, temperate winters with peaks, soil fertility, good levels of rain). The main source of information for the period 1950-2010 is the Slovenian agency Arso, <https://meteo.arso.gov.si/met/en/climate/maps/>

Climatic Table of Nova Gorica - Gorizia												
Info/Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Av. Temp. (°C)	1.8	2.8	6.6	11.1	15.4	19.5	21.6	21.5	16.8	12.4	7.5	3
Min. Temp. (°C)	-1.2	-0.8	2.1	6.2	10.4	14.6	16.6	16.8	12.7	9.1	4.7	0
Max. Temp. (°C)	5.5	6.9	11.2	15.7	19.7	23.9	26.1	26.1	21.1	16.1	10.9	6.6
Precipit.. (mm)	107	111	124	149	157	152	127	134	186	208	222	138
Humidity (%)	78	75	74	73	74	72	70	70	75	79	81	78
Rainy days (dd)	7	7	8	11	11	11	10	9	10	10	10	8
Daily sun Hours (hh)	4.5	5.5	6.6	8.3	9.8	11.4	11.7	10.6	8.1	5.5	4.2	4.4

Table 5. 2: Average climate data in the area. Source: <https://it.climate-data.org> and <https://wheather-and-climate.com>

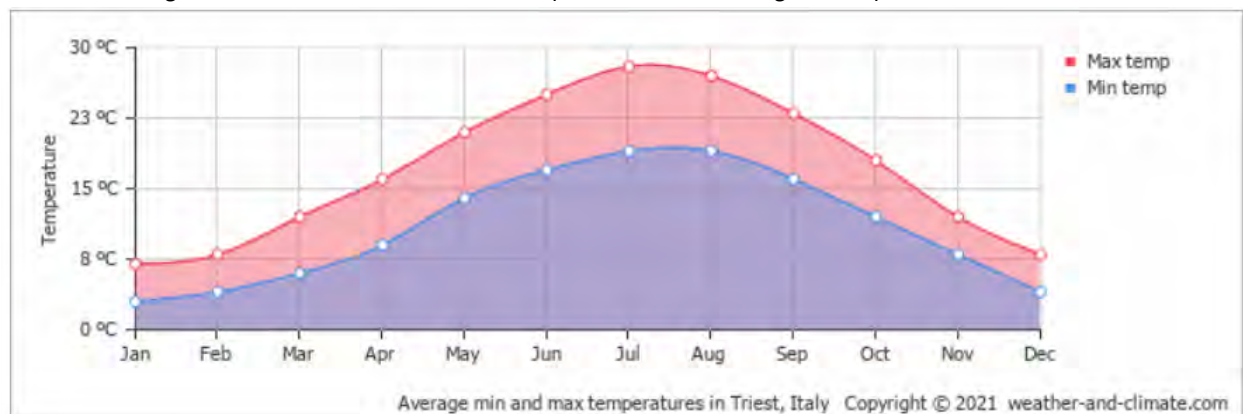


Table 5. 3: Average min and max temperatures in the Area, referencing Trieste National climate regions

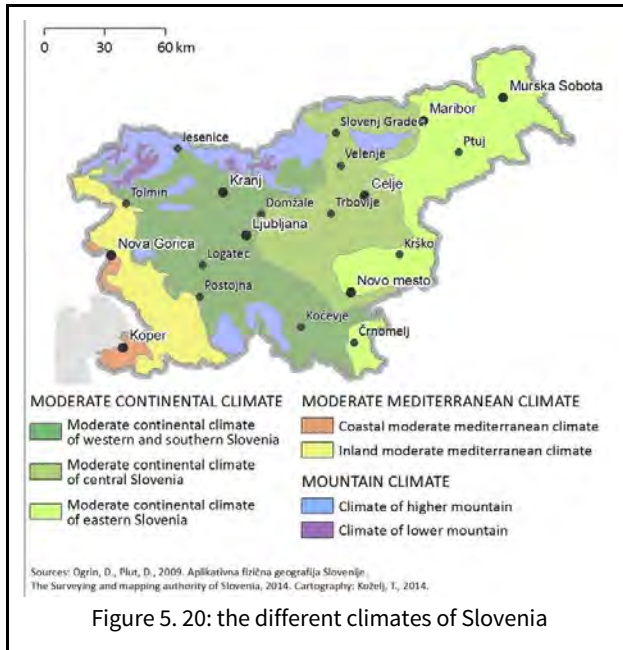


Figure 5. 20: the different climates of Slovenia

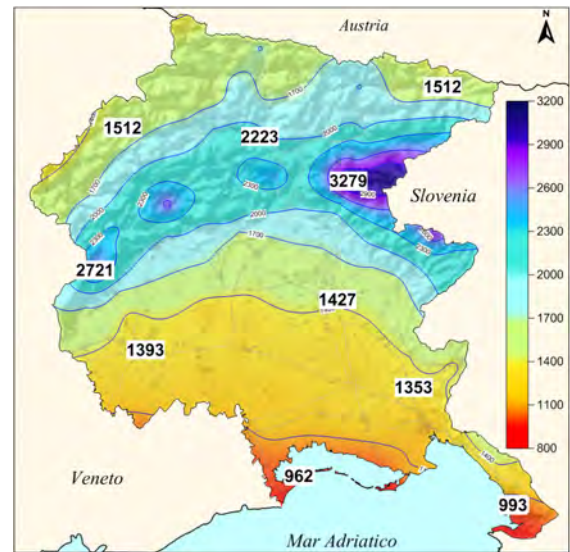


Figure 5. 21: Climate of Gorizia and the FVG Region. The Annual rain in mm 1961-2013. ARPA FVG.

Climate Resilience (EKLIPSE Ch1) - It was not possible to obtain these data. However, both cities are amongst the greenest in their countries, thus it is supposed that the pollutant absorption can be guaranteed, although there is health evidence that some are reaching human bodies (i.e., cancer and heart attacks diseases).

Air Quality (EKLIPSE Ch5). Annual amount of pollutants captured by vegetation; Net between pollutants produced and pollutants captured; Pollutant fluxes per m2 per year; Stations for quality control;). The figures in Nova Gorica highlight good average levels all over the year of pollutants, PN2.5, PM10, O3 and NO2. An increasing amount is registered in winter (sources <https://aqicn.org/city/slovenia/nova-gorica/>).

	PM _{2.5}	PM ₁₀	O ₃	NO ₂
Summary				
2021				
Jun	9			
May	22	8		
Apr	7	18	5	2
Mar	12	11	5	2
Feb	4	7	4	8
Jan	3	8	11	4
2020				
Dec	3	10	10	2
Nov	9	12	3	5
Oct	8	14	5	2
Sep	8	14	4	

Table 5. 4: Levels of PM_{2.5}

PM_{2.5} PM₁₀ **O₃** NO₂

Summary		Days of the month																																
2021																																		
Jan	6	17	22	19	7	11	15																											
2020																																		
Dec	25	3	20	17	11	28	32	32	18	21	10	6	5	5	15	6	3	1	0	4	1	2	0	1	1	8	20	22	19	1				
Nov	26	4	15	17	11	9	19	20	20	19	16	17	15	7	11	14	15	25	21	16	13	31	27	25	20	18	15	12	15	19	15			
Oct	14	17	36	22	27	30	30	27	33	30	26	32	28	26	25	28	16	10	10	22	23	31	34	30	20	20	21	33	28	18	13	12	20	
Sep	2	35	30	37	28	33	45	58	45	31	35	42	38	33	44	42	40	45	39	38	33	40	34	24	22	32	33	30	30	20	28			
Aug	2																																	
Jul	2	20	6	44	34	24	35	43	43	42	29	48	51	67	43	31	34	37	49	53	33	31	43	57	72	59	42	28	48	48	24			
Jun	3	24	3	40	44	48	30	34	39	29	24	21	37	36	45	53	28	15	33	38	25	31	39	33	37	49	45	42	46	56	65	45	38	
May	2	27	21	34	29	35	42	27	33	47	56	52	45	30	19	24	39	25	33	30	35	40	36	36	48	43	31	35	36	38	40	34	32	36
Apr	1	22	7	37	41	48	38	44	43	41	41	45	53	50	60	49	33	37	44	49	57	55	39	39	38	44	50	58	44	46	36	23	35	
Mar	2	26	25	30	27	27	33	24	32	32	32	28	34	40	18	31	34	35	37	36	40	41	45	31	32	33	33	32	31	38	18			
Feb	16	13	2	7	4	19	26	30	17	22	24	6	16	23	24	19	25	27	9	21	25	25	28	29	26	24	18	27	29	29	32			
Jan	30	17	11	4	6	18	18	4	13	10	3	23	17	14	11	1	9	15	6	25	23	16	13	17	12	8	5	6	11	13	18	12		

Table 5. 5: Levels of O₃ in the area.

Summary		Days of the month																																
2021																																		
Jul	43	9	5	7	7	7	7	8	12	15	8	9	10	14																				
Jun	25	5	13	13	17	21	17	12	12	16	20	15	11	10	12	14	17	18	16	16	18	24	43	41	37	48	14	10	11	13	29	23		
May	31	24	13	4	9	13	5	11	4	8	11	13	7	8	6	6	5	8	7	7	9	10	6	7	7	10	5	6	5	10				
Apr	26	2	31	26	11	5	8	6	9	13	15	11	10	9	3	8	9	13	12	15	13	10	12	12	12	14	17	13	10	7	10	12		
Mar	19	12	18	25	34	43	45	6	18	33	19	23	28	23	27	10	12	10	9	12	14	10	9	13	15	21	26	31	30	24	24	29	27	
Feb	10	6	19	27	36	38	42	37	24	14	11	6	10	11	8	18	26	40	42	38	60	65	59	45	44	63	62	61	35	11				
Jan	17	12	2	24	7	8	17	26	8	17	16	14	7	15	25	31	21	23	28	37	33	44	70	67	25	7	12	16	20	27	27	37	26	16
2020																																		
Dec	21	8	25	21	19	18	7	7	9	9	11	15	20	22	16	21	27	41	50	38	41	50	50	41	42	24	12	4	14	10	11	12	17	
Nov	19	10	33	49	45	23	12	20	17	19	24	18	23	26	43	39	30	22	10	16	21	6	10	15	24	21	25	39	43	41	20	23		
Oct	27	4	12	23	12	18	9	11	6	8	13	28	9	2	9	14	7	7	9	10	15	23	46	35	37	16	10	12	13	14	17	20	19	
Sep	28	2	10	4	5	7	9	12	12	13	12	16	22	16	22	21	20	26	30	19	18	14	13	18	16	10	12	6	3	3	3	6		
Aug	2																																	
Jul	28	10	14	13	7	9	10	13	6	9	10	13	11	4	6	8	11	13	6	4	5	8	13	15	10	8	7	9	11					
Jun	30	6	8	11	11	9	7	9	8	6	4	5	6	7	11	8	6	7	10	11	9	6	7	8	10	15	12	9	14	18	17			
May	31	5	5	6	3	7	10	8	10	13	11	12	14	7	11	19	17	12	16	18	16	10	8	12	13	5	6	5	6	9	7	6		
Apr	25	4	13	20	31	23	17	26	23	16	24	25	21	20	23	20	12	18	20	22	20	12	14	17	22	23	26	19	15	14	6			
Mar	22	5	2	3	14	10	16	11	11	11	7	8	10	20	24	32	25	37	8	10	15	24	21	18	26	28	9	6	10	14	19	99	109	78
Feb	13	5	44	55	63	58	25	9	14	28	27	43	54	51	26	23	22	17	19	35	20	10	12	21	17	35	49	52	19	8	11			
Jan	3	26	26	26	37	36	19	25	41	31	38	49	26	31	27	47	58	49	28	33	12	12	33	40	31	33	40	37	35	31	43	28		

Table 5. 6: levels of PM₁₀ in the area in the year calendar

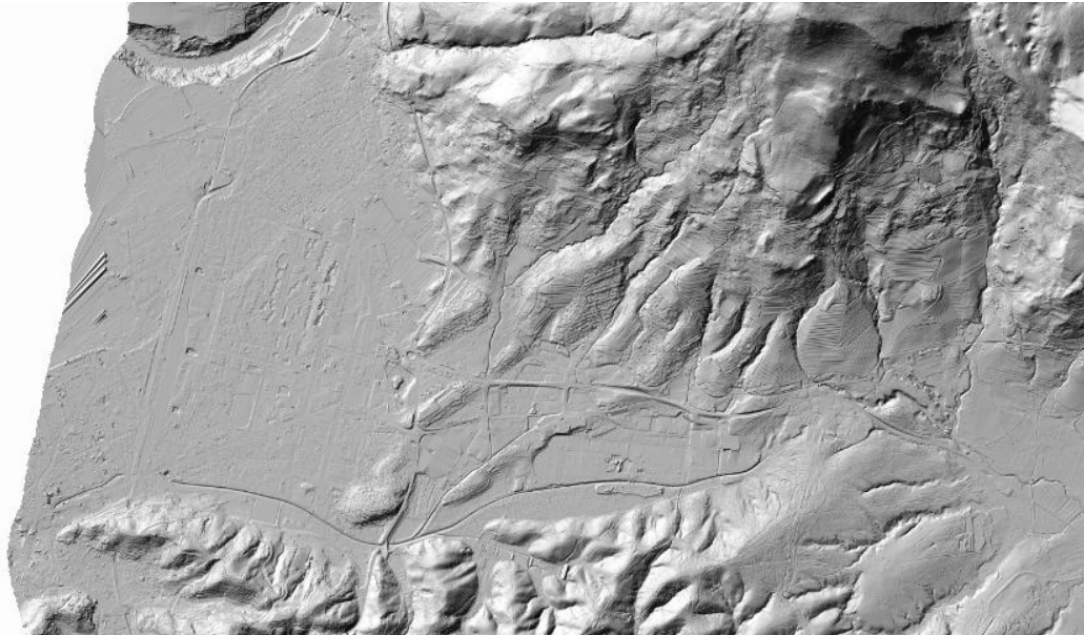


Figure 5.22: Map showing the specific geomorphology of Nova Gorica (ARSO)

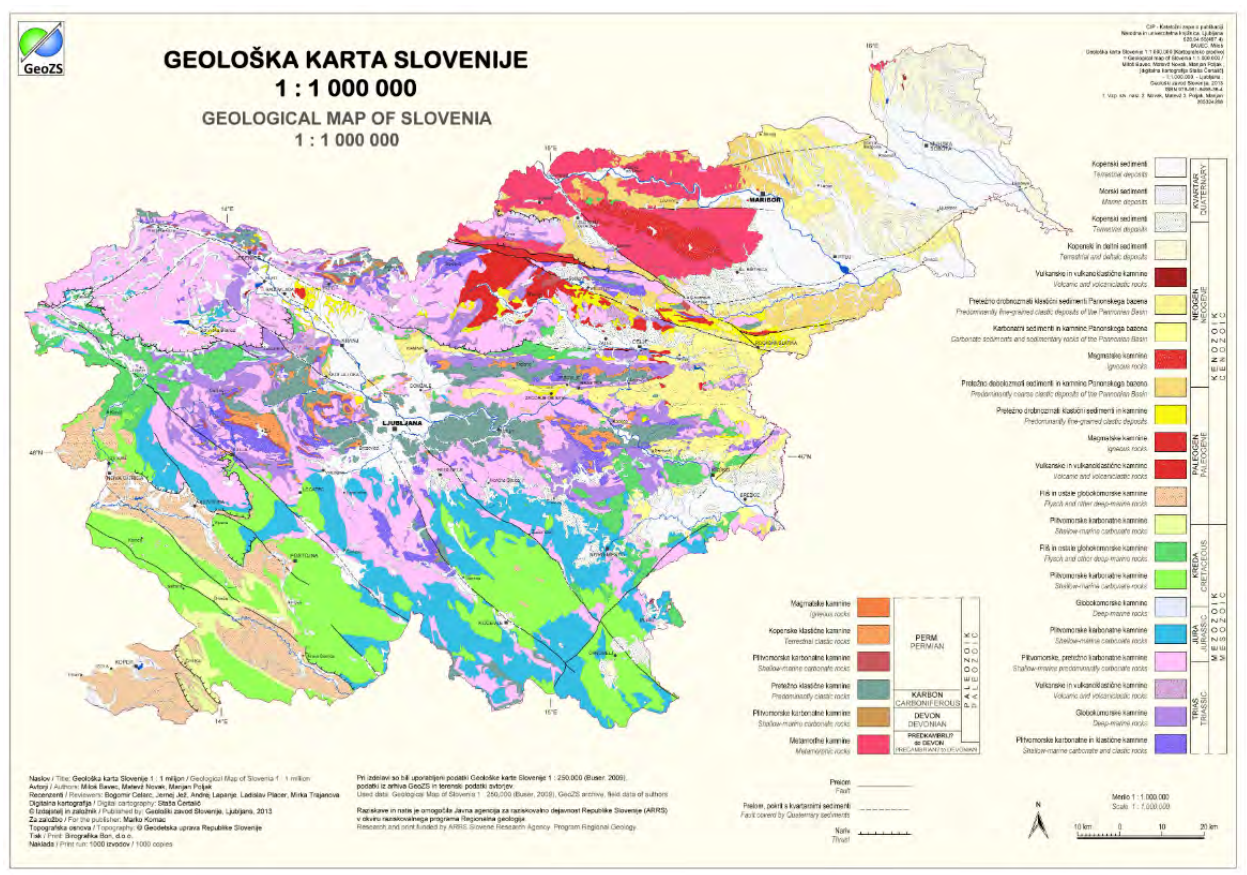
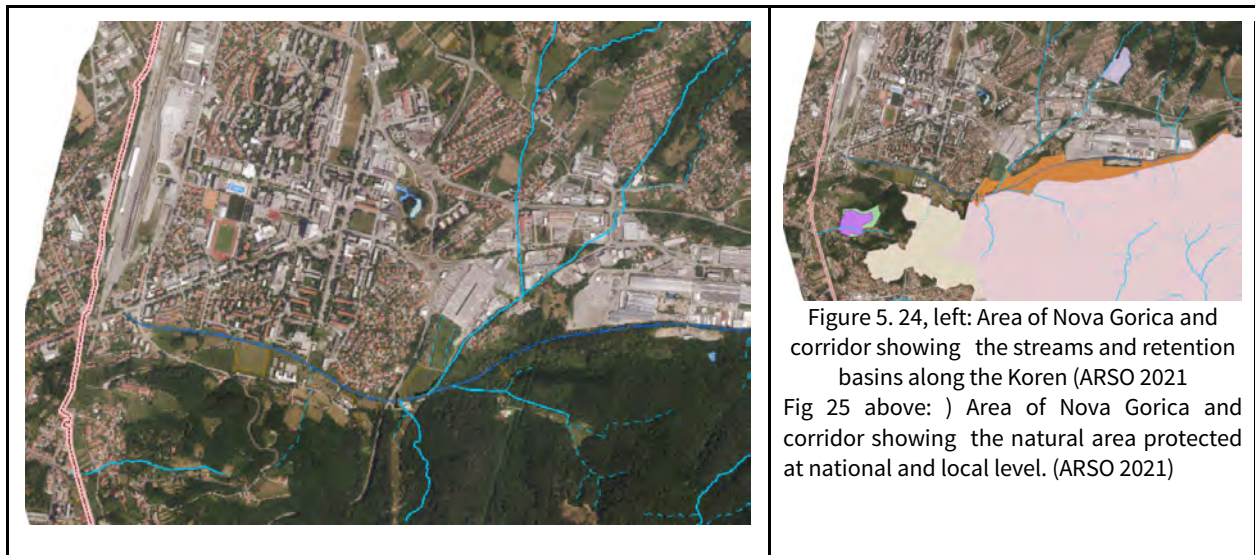


Figure 5.23: the geological map of Slovenia.

Altimetry/Hypsometry. Nova Gorica and Gorizia are located at an altimetry of approximately 95-85m above sea level, but their territory is characterised by small-medium hills (+30/80m)

Hydrography and artificial water bodies. The entire area is characterised by a medium river/stream, the Isonzo passing to Italy/Gorizia before Nova Gorica, and the Koren stream in its affluents through

the Panovec wood. Below is a map showing the rivers in the main central area and the flooding /rare) spots.



Coastal areas (EKLIPSE Ch3). This is not contemplated in the area

Local policies on coastal resilience. The Municipality of Nova Gorica is issuing a strategic document for the greening of the city to become an EU green city with 0 pollution. The document has been anticipated by the transport strategy that is aiming at reducing car traffic and pollution. Articulation with European policies. No data was possible to obtain in this regard.

5.2.1.3. Land use/ land cover

Land Cover. Below is a map of the land use. The percentage is not simple to calculate because we have extracted the part of the city. However, dark red is urban closed area, red is open urban area, yellow is agricultural land, purple is industry and commercial, fucsia is green urban areas, green is forest.

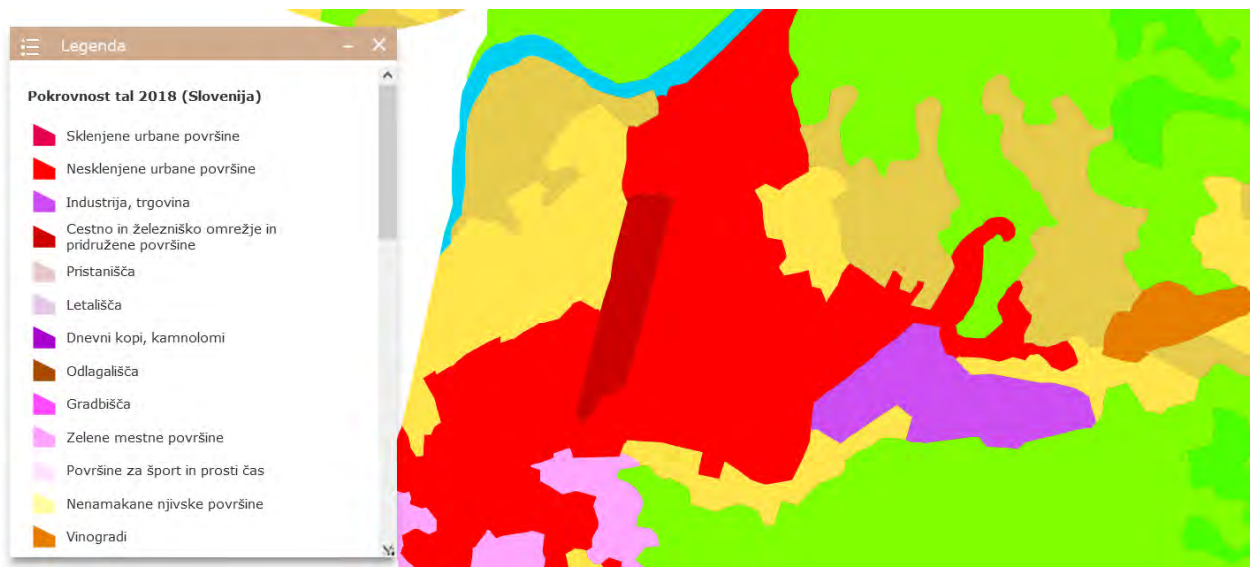


Figure 5.26: Map of Nova Gorica showing the land use

Also confirmed by this other map, with destinations (Kaliopa 2021)

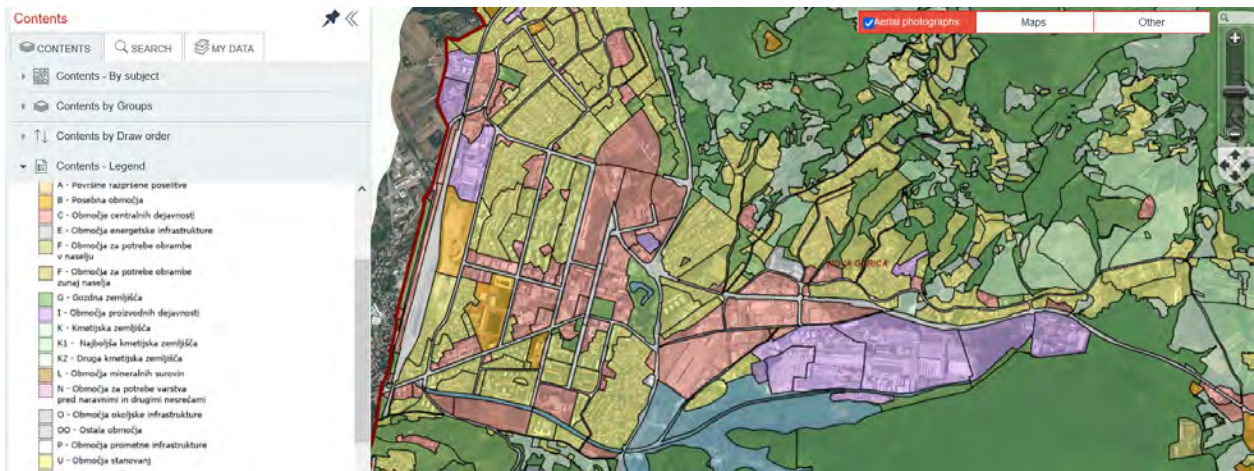


Figure 5. 27: Map of Nova Gorica highlighting the destinations

Below the buildings authorization at this moment, 2021 (Kaliopa)

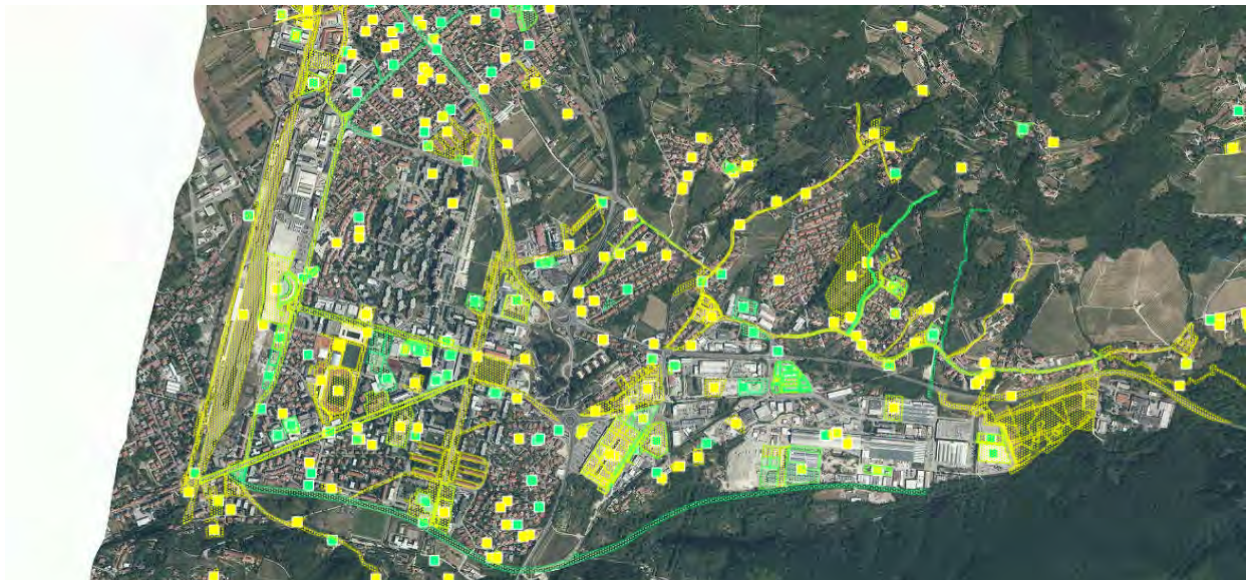


Figure 5. 28: Map showing the buildings authorizations in July 2021

Below the map showing the infrastructure network as developed by the State and the Municipality



Figure 5. 29: Map with the infrastructure networks

The map below shows the public and private lands. IN blue the ones owned by the municipality, in green those of the Rep. of Slovenia, the others are private.



Figure 5. 30: Map with the public and private lands

5.3.1.4. Transportation network (urban dynamics)

Transportation network (and hierarchy). The transportation map is given by merging the two cities. It is important to highlight that there is a small connection provided by a bus, while the two urban realities have a different public transport, including 2 different train stations and 2 different lines of buses.

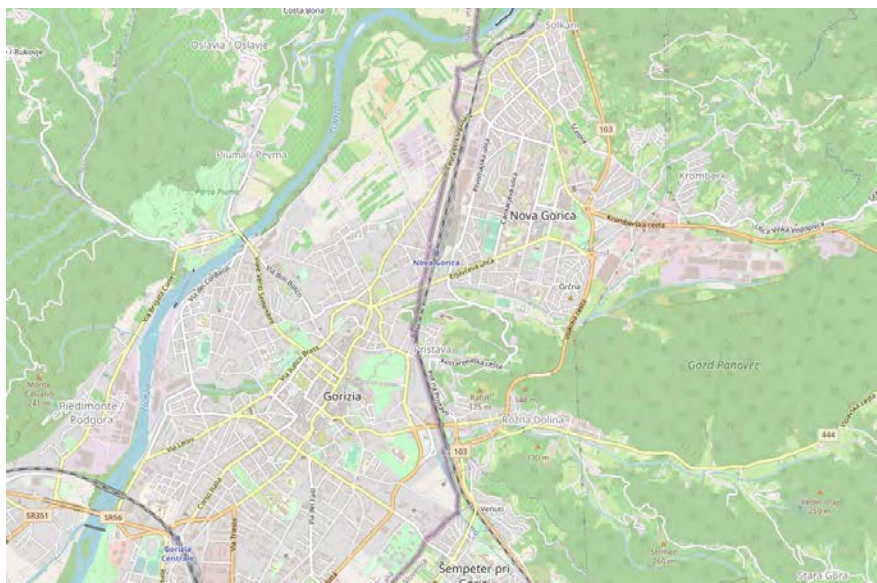


Figure 5. 31: Main streets map from Openstreetmap in both cities. In evidence the railway tracks, the main inner street, and the connections to the highways

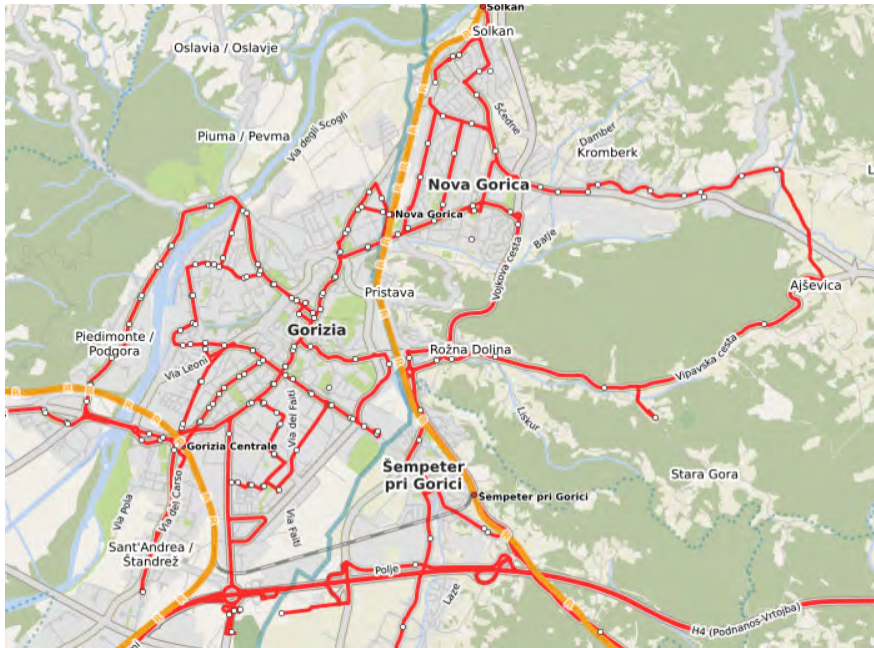


Figure 5. 32: The Bus Map of Gorizia and Nova Gorica. The Bus in Nova Gorica is free of charge for residents and workers. In the figure below we may see the bus (red) and Train (Yellow) network and the main stations. This network also indicates the main road in the cities. Map from OpenStreetMap OPNV Karte

And a more specific one (Kaliopa 2021)

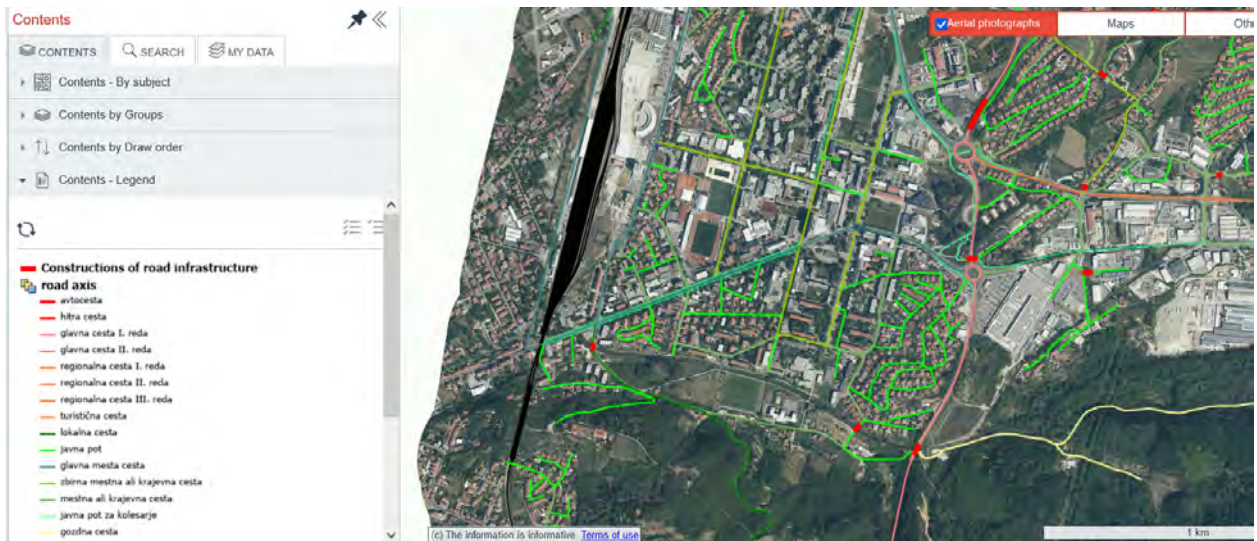


Figure 5. 33: Map of Nova Gorica with an emphasis on the minor car streets

Another interesting mobility innovation, used both in Gorizia and Nova Gorica, is the Pedibus, Piesbus, consisting of organised groups of children going to school together in steps/stops.

Below the maps of both cities:



Figure 5. 34: The Map of Nova Gorica project Pešbus

Cari genitori e bambini,

non vi conosciamo ma vorremmo fare amicizia con voi.
Vi invitiamo sul nostro pedibus, con i vostri bambini per una, due mattine a settimana.

Per noi bambini è importante, perché un pedibus senza conducenti non può andare e noi siamo ancora troppo piccoli per andare da soli.

Accompagnare un pedibus è utile per tutti... Ci aiutate a diventare grandi, a conoscere alcune cose della città che non sappiamo.

Lungo il percorso potete raccontarci storie, insegnarci come ci si comporta per le strade e tanto altro.

Aiutate la città: perché un pedibus riduce il traffico, lo smog ed il rumore. Cose importanti per tutti e che ci aiutano a vivere meglio.

E voi... vi scoprirete ancora un po' bambini!
Perché stare con noi, vi fa bene e vi tiene in forma.

A presto, i bambini del pedibus.

Referenti Pedibus :
Emanuela 347 1600 390
Ivana 347 2973 194
Luana 347 2107 228

Mail: pedibusmarnate@gmail.com

Oppure
<http://www.comprendivoparni.it>
Sezione Scuola – Famiglia
Servizio Pedibus

LINEE PEDIBUS

LINEA VERDE
VIA BRESCIA, 21
Via Genova
Via Gorizia
Via Firenze
Via Torino
SCUOLA

LINEA BLU
PIAZZALE CIMITERO
Via Don Luigi Spotti
FERMATI VIA Don
Luigi Spotti 230
Via Torino
SCUOLA

LINEA ROSA
VIA C. BATTISTI, 380
Via Sant' Ambrogio
Piazza S. Francesco
Largo Giovanni XXIII
Via Torino
SCUOLA

PEDIBUS: Il servizio, realizzato in collaborazione con il Comune di Marnate ricomincerà a partire dal nuovo anno scolastico. I moduli per l'iscrizione sono scaricabili dal sito:
<http://www.comune.marnate.it>
Sezione Pedibus

Figure 5. 35: The leaflet of the Piedibus project in Gorizia

5.2.1.5. Green structure and Biodiversity

Vegetation characteristics and distribution. Map of the invasive species in the city. Description is provided in this link (<https://www.invazivke.si/pregled.aspx?vkarta=1>)

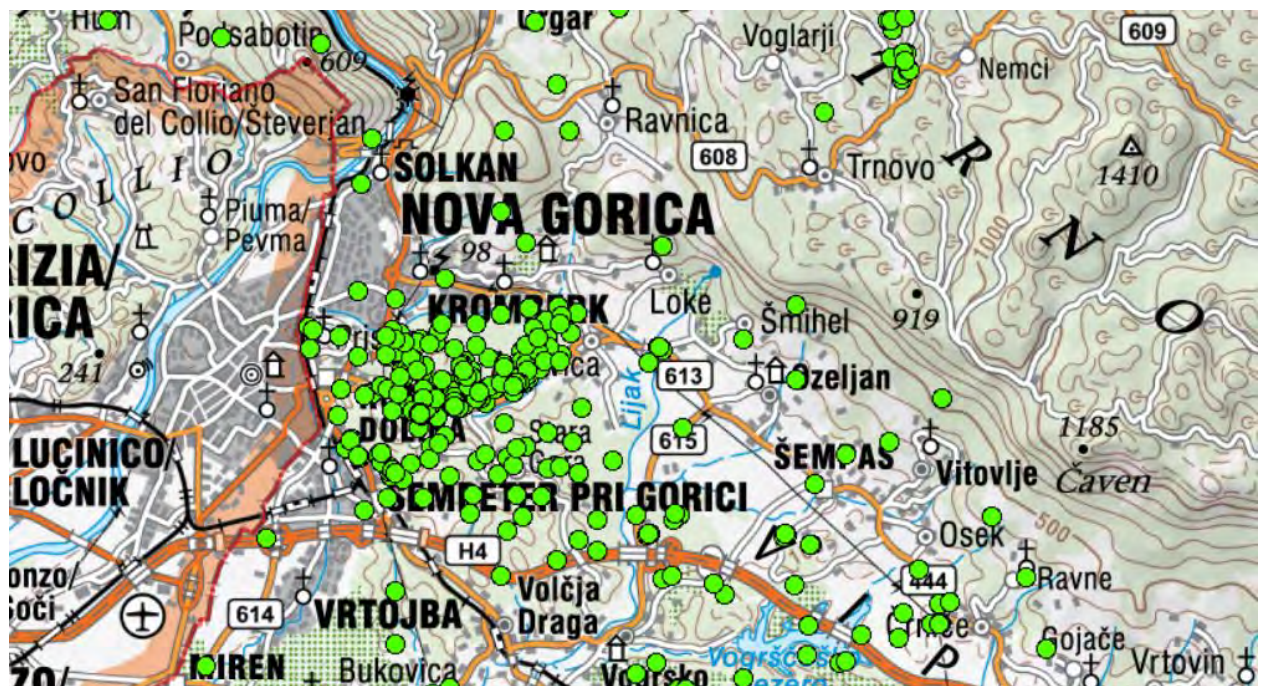


Figure 5. 36: Map of Nova Gorica identifying the invasive species in the vegetation

Distribution of public green spaces. For its socialist structure most of the city green is public, with parts managed by local communities (around some blocks)

Green infrastructure. Below the relevant green areas according to their national and international importance.



Figure 5. 37: Map of the relevant and protected green areas of the city.

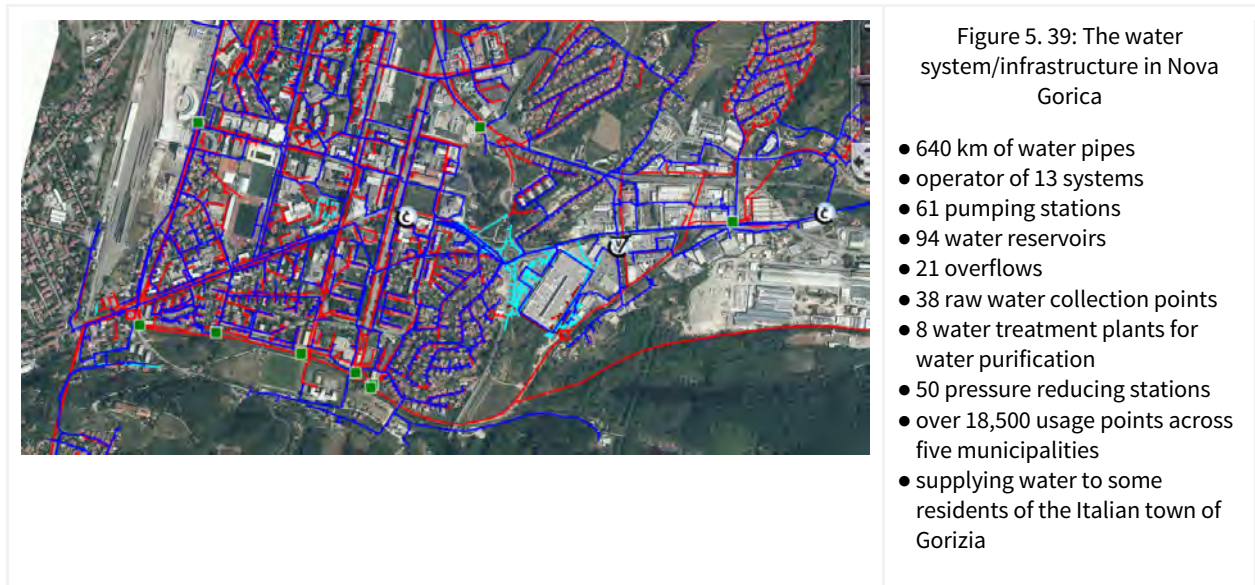
Protected areas. The Slovene part of the territory recognises Natura 2000 habitats areas, while the Italian part, around Gorizia, recognises only steppingstones, namely temporary spaces for animals.



Figure 5. 38: A map showing the Natura 2000 areas, indicated with dotted lines the Bird Directive, the Rose highlight for the Directive on Habitats and ecosystems. The pink part is the urban park of Panovec

5.2.1.6. Water management

Urban water management. The water supply in Nova Gorica is showed in the below map (Kaliopa 2021), with the blue lines, and numbers:



Water availability. These data are already explained in the previous (water availability) and following tables (floodings and canals).

Flooding risk. The map below shows the potential, rare, flooding areas in the city. Parts are also involving the corridor.

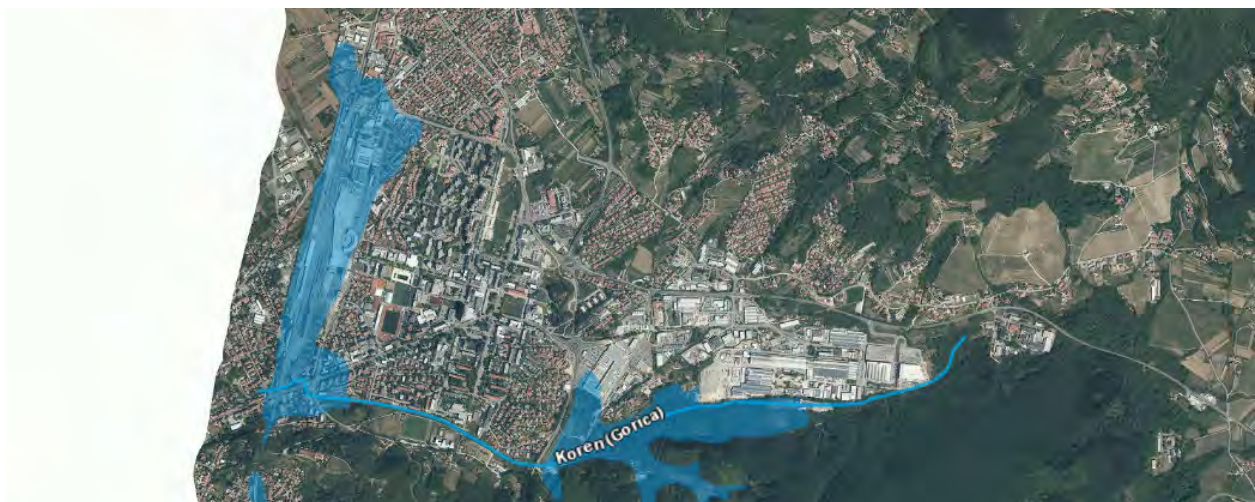


Figure 5. 40: Map showing the potential flooding areas

Droughts risk/water scarcity. This is also explained in the previous section. There is no water scarcity foreseen in the area, also thanks to the high annual rainfalls and the streams/rivers networks.

Water quality. According to the Numbeo water drinkability and accessibility index, tap water has a score of **100 / 100** (100 being best). Numbeo considers this score to be "Very high"

Local policies/ actions. The renaturing of the water courses is one of the priorities of the Municipality of Nova Gorica and Gorizia. This was already highlighted in a previous EU initiative, INTERREG

ITA_SLO called Gotrawama project, to revitalize the Koren stream. Koren is also characterizing the URBINAT corridor. Other water sources, such as Soča/Isonzo and the multiple rivers in the Panovec (natura2000) area are in focus.

Articulation with European policies (commitments/goals). See above

Participation on national and European platforms. No data about

5.2.2. Social description

This section is meant to define the social profile of the urban agglomerate and of the case study context to determine possible links between problems and solutions in the URBINAT NBS catalogue combinations. Given that the URBINAT project is targeting the improvement of social conditions through the creation of healthy corridors, this set of data (which we consider flexible being the project methodology still in progress) must indicate the general and local weaknesses and threats and connect them with the urban environment. In this perspective, the general data are essential for 2 main reasons:

- to give a scientific knowledge about the social dynamics and about an urban trend, which may highlight issues not depending from the neighbourhood but on historic contingencies, climate conditions or policy orientations;
- to give a framework of comparison between the urban scale and the specific neighbourhood, which may show positive or negative scenarios for the adopted case study
- It contributes to the adequacy of project responses to local needs.
- It is also emphasized that the diagnosis is situational, and therefore limited to a certain time and space defined previously in the methodological framework

It must be said that the trend of social data (for example comparing the official statistics of 2 different periods, 2 different social *Censa*, could be determinant in understanding the social negative or positive changes and consequently act for ad-hoc improvements. It must be also said that social issues may not be linked fully to the neighbourhood itself, but provoked by larger dynamics (i.e higher percentage of lungs cancer provoked by wind taking industrial smokes).

The availability of local data may facilitate the analysis and the comparison with general urban data.

The set of Social data ranges from an overall assessment of the society as per traditional statistical information, as gender, life expectancy, degree of education, population distribution, social inclusion, etc., which offer a general scenario on the expectations of the local population, to more specific information, as the cultural rate, the trust on institutions, justice access, etc. that may on the opposite offer perspective on the potential contribution of citizens to the URBINAT actions.

Reference can be made to <http://www.europeansocialsurvey.org/data/#>

5.2.2.1. Demography

Demographic description, namely: quantity, density (inhabitants per sq/km), population dynamics (how the population trend is developing or developed, i.e., increase/decrease/aging), genders, generations (average generation duration), life expectancy.

The below tables are showing the almost stable, but progressive population of Nova Gorica and decreasing population in Gorizia. This is having an effect also in the real estate market, with huge availability of housing in Gorizia e almost impossible in Nova Gorica, with consequent different market prices. In Gorizia there is a high aging rate, although in line with the Italian trends, differently from Nova Gorica and Slovenia.

	Population	Annual evolution	
	2019*	2009* - 2014*	2014* - 2019*
Nova Gorica municipality	31,799	-0.4%	+0.0%
Goriška statistical region	117,616	-0.1%	-0.6%
Slovenia	2,080,908	+1.4%	+1.0%

Table 5. 8: Demography evolution in The city, the region and Slovenia in the last 6 years. Source: SURS, 2019 *as of 1.1. of each year

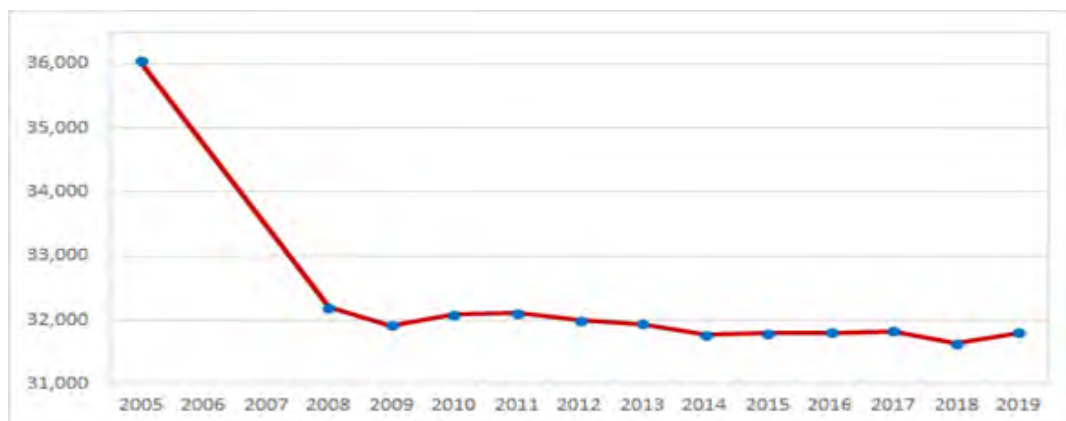


Table 5. 9: Demography evolution since 2005. Source: SURS, 2019 *Data for 2008 and on are prepared in accordance with the changed statistical definition of population published in 2008



Table 5. 10: Demography in the city of Gorizia

	Population	Men	Woman	Average density (inhab/km ²)
2005	36,043	17,729	18,314	129.0
2008*	32,193**	15,987	16,206	115.2
2009	31,911	15,730	16,181	114.2
2010	32,089	15,890	16,199	114.8
2011	32,112	15,895	16,217	114.9
2012	32,000	15,760	16,240	114.5
2013	32,938	15,690	16,248	114.3
2014	31,773	15,660	16,113	113.7
2015	31,787	15,659	16,128	113.7
2016	31,798	15,693	16,105	113.8
2017	31,825	15,720	16,105	113.9
2018	31,638	15,648	15,990	113.2
2019	31,799	15,852	15,947	111.8

Table 5. 11: Population per gender in Nova Gorica. Source: SURS, 2019 * as of 1.1. of each year **Data for 2008 and on are prepared in accordance with the changed statistical definition of population published in 2008

	14 and younger	15 - 64	65+
Nova Gorica municipality	14.4	62.5	23.1
Goriška statistical region	14.8	62.8	22.4
Slovenia	15.1	65.1	19.8

Table 5. 12: Composition of the population per age. Source: SURS, 2019



Table 5. 13: Composition of the population per age in Gorizia. Source ISTAT

	1960	1986	1988	1998	2008	2018
Men	66.1	68.1	69.3	71.3	75.4	78.3
Women	71.9	76.1	77.1	78.7	82.2	83.9

Table 5. 14: Composition of the population per gender over the last 50 years in Slovenia. Source: SURS, 2018

Since 1960, the life expectancy has been increasing in Slovenia, for both women and men. In 2018, men in average lived 83.9 years and women 5.6 years more (in average 83.9).

Education/Literacy: Eklipse_Ch8. The degree of education in Nova Gorica is pretty high, with awarded schools at EU level, such as the Gymnasya, 200 m far from the corridor. A little lower in Gorizia (see tertiary education), due to a structural difference between the two countries and the higher level of immigration in Gorizia. Both cities host universities, beyond the primary, secondary, and high schools. In Gorizia there are also 2 Slovene schools for Italians, where the two languages are structural. These are the graphs.

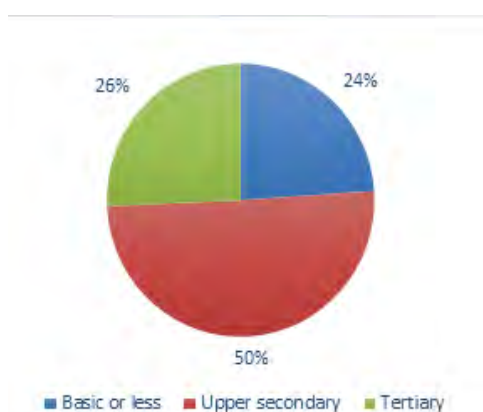


Figure 5. 41: Share of highest level of education for over 15. Source : SURS 2019

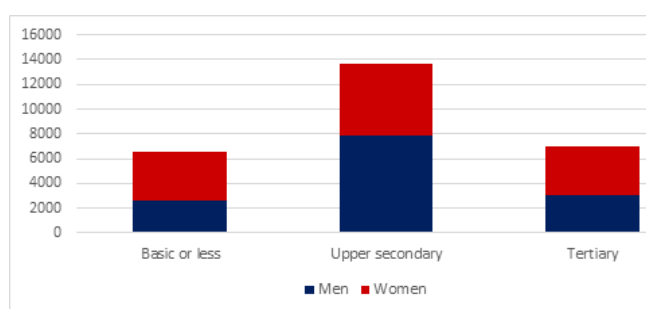


Figure 5. 42: The share divided per sex. Source : SURS 2019



Figure 5. 43: Levels of education of the population in Gorizia, CensPop. 2018-2019

Housing conditions. The situation in Nova Gorica is different from Gorizia. In Nova Gorica housing is an issue, given that most of the dwellings are occupied and there is demand for that, with consequent high costs (average 1500 eur/sqm). In Gorizia there are many vacant houses and

dwellings, with consequent low real estate costs (average 900 eur/ sqm). This phenomenon determines an increasing tendency of house purchase in Gorizia also for Slovenians.

	Nova Gorica municipality	Slovenia
Number of dwellings per 1,000 population	422.0	412.0
Average useful floor space (m ²) of dwellings	82.4	81.5
Average useful floor space (m ²) per occupant	30.3	29.0
Average number of occupants per dwelling	2.8	2.9
Share of occupied dwellings without all basic facilities (%)	3.1	4.0
Share of occupied dwellings with less than 10m ² of useful floor space per occupant (%)	2.1	3.0

Table 5. 15 dwellings description in Nova Gorica and Slovenia

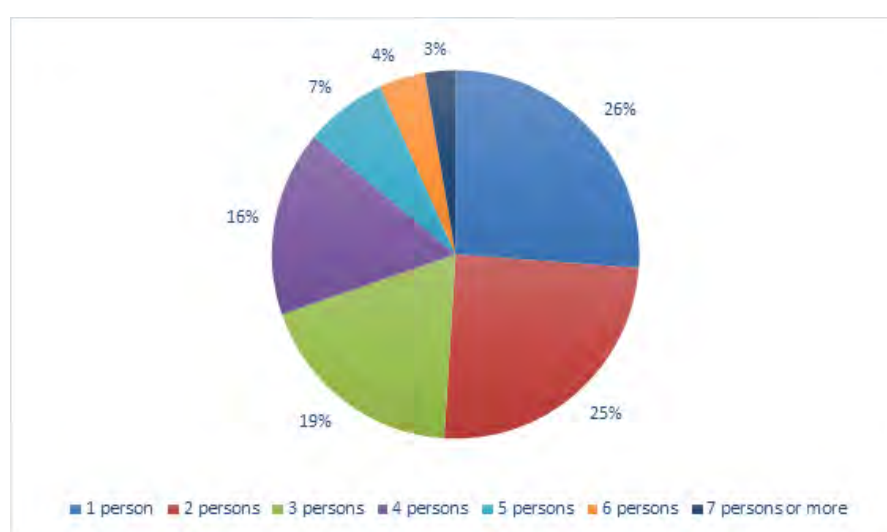


Figure 5. 44: Occupation of dwellings in Nova Gorica, Surs 2018

Migration rate and migration graphs. The city of Nova Gorica reveals a lower rate of immigration compared to the Italian Gorizia with a much higher one, probably due to lower real estate costs. In the Italian context the increase is evident in 10 years.

		Immigration	Emigration	Total net migration
Nova statistical region	Gorica	2,106	2,426	-320
Nova municipality	Gorica	1,665	1,457	208
Nova settlement	Gorica	1,052	951	101
Pristava settlement		12	20	-8

Table 5. 16: The immigration/emigration in Nova Gorica. Source: SURS 2019



Figure 5. 45: The immigration/emigration in Gorizia, per year. Source ISTAT

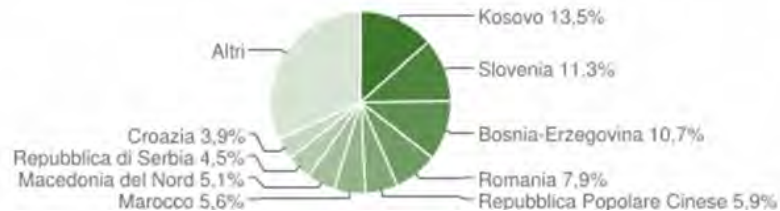


Figure 5. 46: The immigration composition in Gorizia. Source ISTAT Tuttitalia.it

Cultural rate. Both Gorizia and Nova Gorica offer a rich cultural offer. Considering the two cities as a unique urban aggregate, we count 2 Main libraries, 2 main theatres, several cultural centres on both sides of the border and in 3 languages, different associations for minorities, numerous bookshops with editors. Both cities applied for the 2025 Culture Capital, being awarded in 2020. The candidature, entitled GOBorderless! includes numerous cultural events that focus on cultural diversity and unity. The final bid book of the candidature is freely readable at <https://issuu.com/go2025/docs/go2025eng>.

Religion. The religious composition of the society is similar in both cities, with the highest percentage of Catholics, followed by orthodox (mostly Serbs, Albanians, Kosovars), Islam and other religions. The presence of different religions did not create issues so far in both cities, becoming one of the strengths (highlighted also in the Culture Capital Dossier) of the urban area.

The Religious composition in Gorizia. The religious composition of Gorizia is presenting the similar religions, including Indi and Buddhist. Important to underline the historic presence of an important Jewish community in Gorizia that was almost fully exterminated during the 2nd WW. Of that there is still an important Ghetto along via Ascoli, the Synagogue as well as an historic cemetery, which is today in Slovenian territory. All these cultural spots are part of the extended corridor in URBINAT.

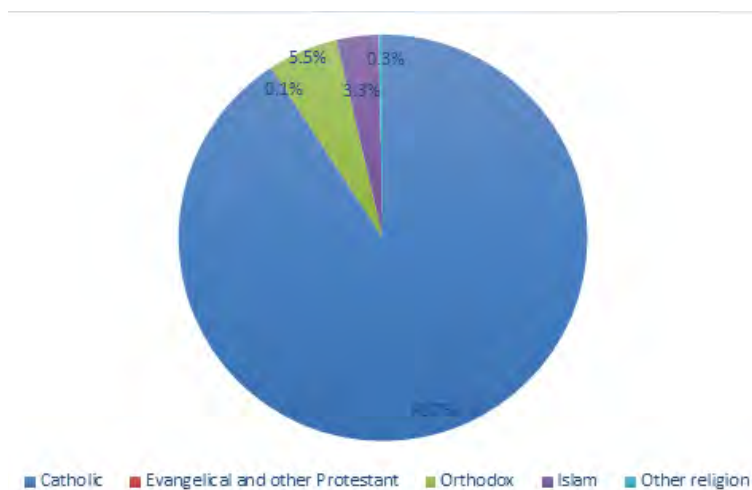


Figure 5. 47: The Religious composition in Nova Gorica



Figure 5. 48: The old Jewish cemetery in Pristava/Nova Gorica



Figure 5. 49: The Synagogue in Via Ascoli, Gorizia

Family description. The family composition is slightly different considering Nova Gorica and Gorizia, given the higher percentage of natality in the Slovene side. Italian families are smaller.

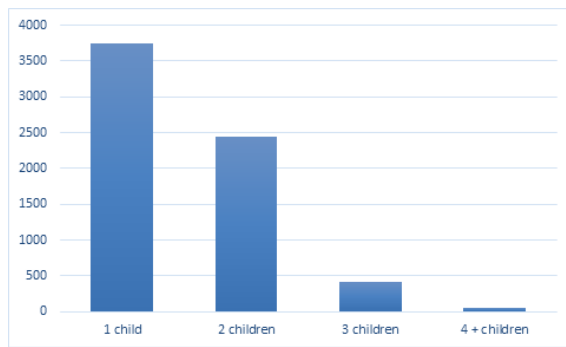


Figure 5. 50: Nova Gorica, Percentages with reference to n. of children per family. Surs 2018.

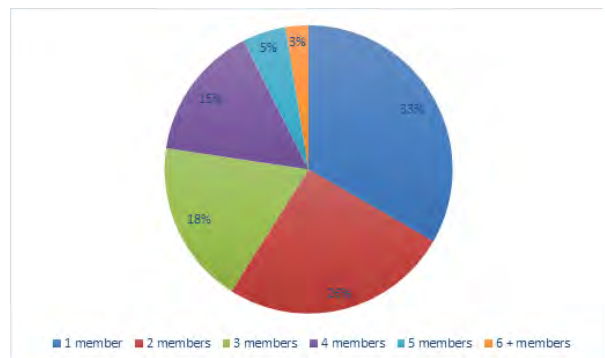


Figure 5. 51: Nova Gorica, Percentages with reference to n. of people per family. Surs 2018

TREND FAMIGLIE			
Anno	Famiglie (N.)	Variazione % su anno prec.	Componenti medi
2014	17.061	-	2,06
2015	16.985	-0,45	2,05
2016	17.041	+0,33	2,04
2017	16.983	-0,34	2,03
2018	16.962	-0,12	2,00
2019	16.938	-0,14	1,98

Variazione % Media Annuia (2014/2019): **-0,14**

Variazione % Media Annuia (2016/2019): **-0,20**

Table 5. 17: Average composition of a family in Gorizia, trend, Adminstat 2020

5.2.2.2. Safety and health

Health and well-being rate. The data obtained are from the national level.

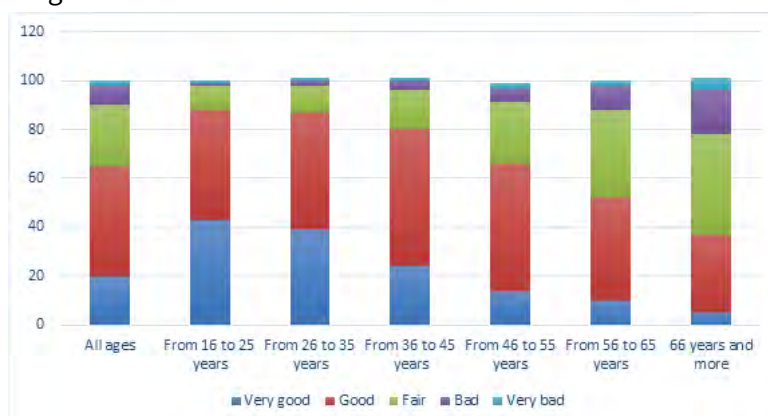


Figure 5.52: Health conditions per age in NG.

Causes of death. The data reported refer to the statistical region of Slovenia and the city of Gorizia. It should be highlighted that there is an important rate of death due to neoplasms in both. In particular, in Gorizia the cancer death and heart attack deaths are at the highest percentage in Italy (cancer is one of the worst in the country).

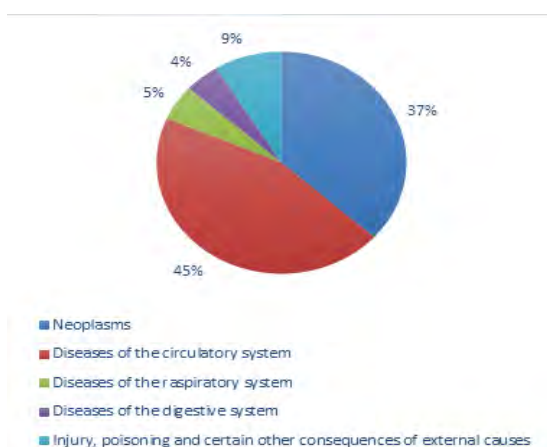


Figure 5.53: Average diseases in Nova Gorica (cause of death). Surs 2018



Figure 5.54: diseases in Gorizia and causes of death. Most recent investigation ISTAT position Gorizia in the 76th position in Italy on 107 municipality, with higher problems than the average

Reproductive health. Such data could not be gathered yet.

Health services. The two cities are achieving a common health system that should permit inhabitants of both sides to get care services regardless of their residence. presently there are 2 different hospitals (Slovenia and Italy) with several ambulatories. The Slovene system is centred in ambulatories for general health care, while the Italian system relies on individual doctors and respective ambulatories.

The figure for Nova Gorica shows that the percentage of doctors per inhabitant is lower than the rest of Slovenia.

	Goriška statistical region	Slovenia
Number of doctors per 100,000 inhabitants	272.7	324.7
Number of inhabitants per doctor	366.7	308.0

Table 5.18: Health services in Slovenia and Goriška region

Safety and criminality. In 2018, there were 75 convicted adults and juveniles in Nova Gorica municipality (2.4 per 1,000 people), which is below national level, where there were 3.1 convicted per 1,000 people. In comparison to the municipality of Ljubljana, where the capital is located, the number of convicted adults and juveniles per 1,000 people is slightly lower.

	Number of convicted adults and juveniles	Convicted adults and juveniles per 1,000 people
Munic. of Nova Gorica	75	2.4
Munic. of Ljubljana	807	2.8
Slovenia	6,324	3.1

Table 5. 19: N. of convicted adults and youngsters in Nova Gorica compared to other national figures. Source: SURS, 2018

Type of crime	Number of crimes committed
Murder	2
Particularly severe physical injury	1
Severe physical injury	7
Lightweight injury	53
Other offenses	3
In total	66

Table 5. 20: Criminality typologies in Nova Gorica. Source: Police Directorate Nova Gorica, 2018



Figure 5. 55: Criminality typology in Gorizia. Source: IlSole24Ore, 2020

Gorizia is at position 59 in Italy for criminality, being anticipated in the FVG Region by Trieste, another border city. Highest worries are about organised criminality, web-crimes as well as tempted murders.

Security. The figures above are connected to the perception of safety and related requests for security.

5.2.2.3. Participation

Political participation. Nova Gorica is on the average of Slovenia in the voting rates, around 50% of the potential voters. Among the reasons, the feeling of detachment from the national level and the proximity to the border, with higher immigration rates

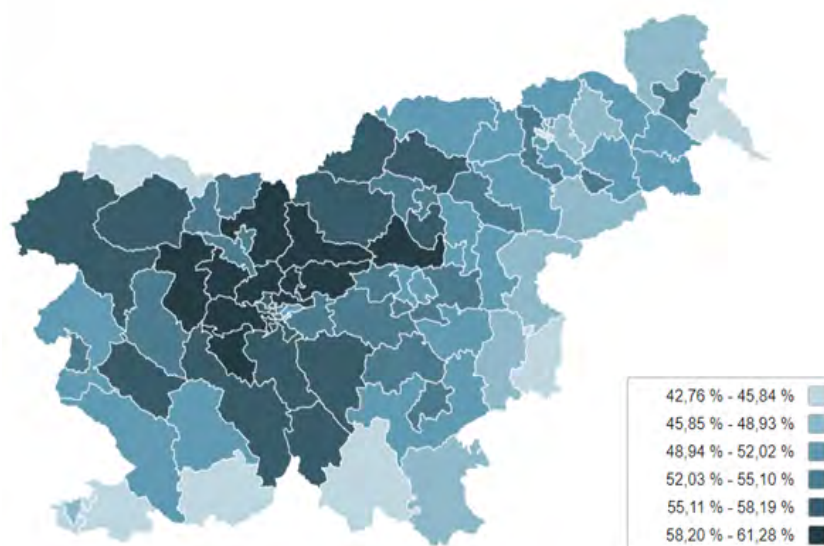


Figure 5. 56: Map displaying the political participation in voting in Slovenia

Trust in local public institutions. No data could be found in both cities about the trust in local institutions. Gorizia is showing a stable political orientation (last elections 25% of total voters, 50% of actual voters elected the present mayor in line with the predecessor, right wing). In Nova Gorica Voluntarism (volunteering, associative movement). According to Slovenska filantropija, there were 328 voluntary organizations registered in the Goriška statistical region in 2018. In the same year, 25,449 volunteers completed 266,050 hours of voluntary work. On average, one volunteer completed 10.5 hours per year. In Gorizia we have counted 7, mostly devoted to medical activities.

There were 20 voluntary organizations registered in the municipality of Nova Gorica in 2020, dealing with different topics, including social inclusion.

Social connections. In Slovenia the three most common types of NGOs are: association or federation of associations, institutes, and institutions. According to the Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES - Agencija Republike Slovenije za javnopravne evidence in storitve), currently there are 352 association or federation of associations, 79 institutes and 10 institutions registered in Nova Gorica municipality. According to the Ministry of Public

Administration (MJU - Ministrstvo za javno upravo), among those there are five social enterprises (four institutes and one association or federation of associations).

Number of NGOs in Nova Gorica municipality and Nova Gorica settlement registered in 2019

Type of NGOs	Nova Gorica municipality	Nova Gorica settlement
Association or federation of associations	352*	176***
Institutes	79**	36****
Institutions	10	3
In total:	441	215

Table 5. 20: Presence of NGOs in Nova Gorica

5.2.2.4. Public services

Mobility (buses, trains, cars, bikes, etc.). Both cities have a regular Bus system, bike sharing system, train stations and car sharing options, and there is a good international airport in the province of Gorizia (Ronchi dei Legionari). The most used transportation vehicle is the car, also considering the relatively low national and international connection (train network). No restrictions about car pollution are in place. Only in Gorizia a small restriction in the inner city is applied in February.

Subjective well-being. As per previous figures, the well-being level is considered high in both cities. Although Gorizia is positioned in 2020 in the 76th rank in Italy (out of 107 cities). The details include well-being and health parameters, here below described (mortality, Cancer mortality, pediters, hospital available beds, etc.). Gorizia is ranked 1st for life expectancy in Italy.

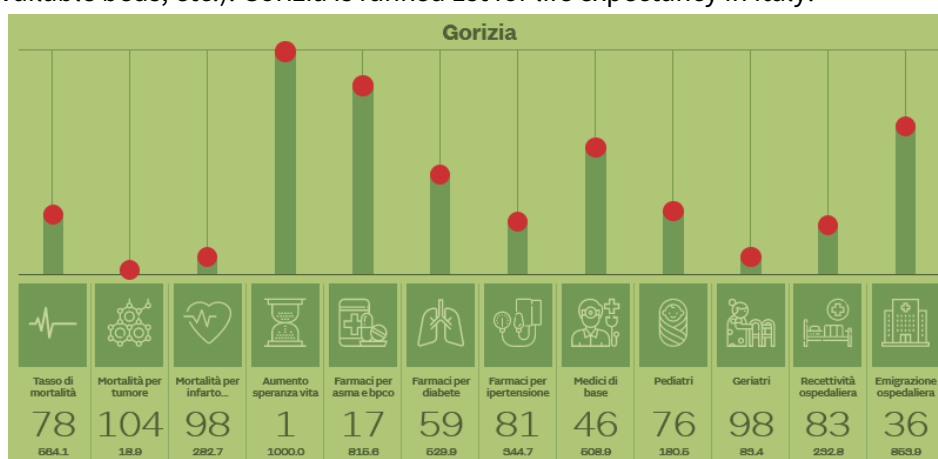


Figure 5.57: Subjective well-being in Gorizia through different parameters.

This 2018 figure from Goriska, which is also the same in Nova Gorica, shows a good perception of quality of life.

In 2018, the average rating of overall life satisfaction in the Goriška statistical region was 7.4, which is the same as the average rating for the whole of Slovenia (7.3). The majority (51%) assess their overall life satisfaction on scale between 7–8. 24% of people rated it the highest (9–10) and 18% rated their life satisfaction between 5–6. Lower satisfaction (between 0–4) was assessed by 6% of people living in the Goriška statistical region.

Self-assessment of overall life satisfaction by statistical regions, Slovenia, annually. SURS. 2018. URL: https://pxweb.stat.si/SiStatDb/pxweb/en/10_Dem_soc/10_Dem_soc_08_zivljenjska_raven_18_08720_silc_zadovol_zi

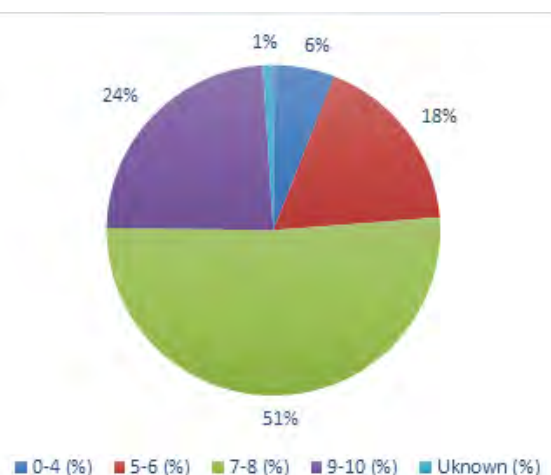


Figure 5. 58: Perception of quality of life in the Goriska

Public services available inside the Urban agglomerate:

Considering the limited extension of both cities, services are very capillary, with differences due to the structure of the medical and education system. The figure below shows a good provision of basic services.

Service	Nova Gorica	Density	Gorizia	Density
Schools, universities, academies	23	6,8	59	
Health Services (ambulatories, etc.)	21	6	2	
Civil Protection	6	1,7	?	
City offices	1	0,3	1	
Police stations (Police, carabinieri, financial police, etc.)	2	0,6	5	
Cultural centres	24	6,9	5	
Libraries	1	0,3	3	
Archives	2	0,6	2	
Social centres	2	0,6	3	
Spaces for socialization	19	1,1	15	
Parks and gardens	4	1,2	7	
Bars and restaurants	39	11,1	58	
Supermarkets	7	2	16	
Post office	1	0,3	4	
Hotels	3	0,6	4	

Table 5. 21: presence of basic services in the urban agglomeration (Nova Gorica + Gorizia)



Figure 5. 59: Facade of the Municipality of Nova Gorica - Občina.



Figure 5. 60: Facade of the Municipality of Gorizia Comune.

5.2.3 Economic description

In this Category, the data collected aim to provide information about the economic development of the city. Such data are collected at the scale of the city and at the scale of the study area. Data are related to standard economic indexes but also to new indicators which can help to evaluate the real situation of the city from an economic perspective.

The data collected by the cities allow us to depict a picture of the economic situation of the city. Beyond many standard economic indexes (like average familiar income, employment rate, educational facilities, etc..), other more actual indicators are investigated and evaluated (like short-term contract rate, the importance of the non-profit sector, the competitiveness, etc..).

All this information can help to identify study areas where healthy corridors can be implemented, improving the quality of life of the people.

The investigations are based on some wealth indicators related to income, current expenditure and living conditions. The data collected allows us to take into account also the degree of competitiveness in the city and its capability to create, maintain and redistribute the wealth among its inhabitants. An important focus is on the labour, the workforce and the conditions of workers in the different sectors.

In such analysis also the innovation, the research of innovative procedures and amounts of the investments related to modernization are approached and give important information on the “state of health” of the city. Some indicators regarding the degree of educational facilities, kindergartens, schools and in general cultural facilities provide fundamental insights to better evaluate the real situation of citizens.

5.2.3.1. Income and poverty.

The following table resumes the local trend.

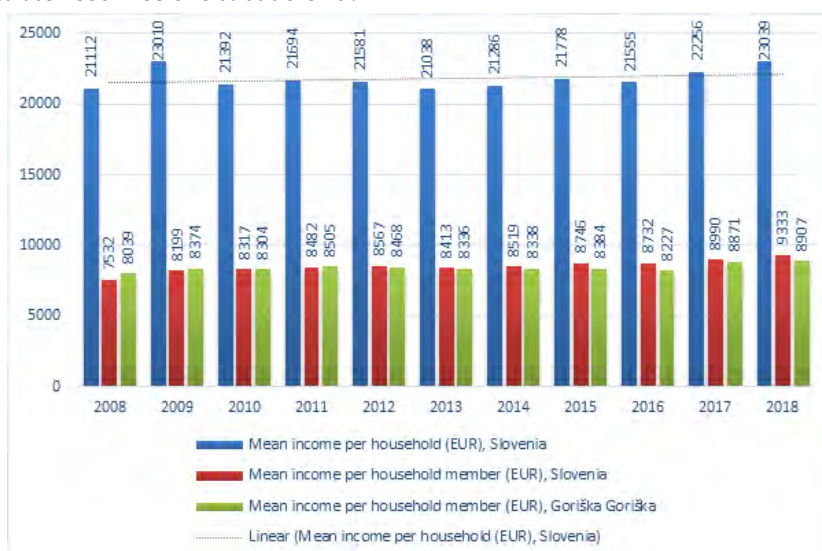


Figure 5. 61: The figure shows the average income in the families of the Goriska region compared to Slovenia, showing a stable trend. Such a trend is confirmed in Nova Gorica where the employment rate is good. (SURS 2018).



Figure 5. 62: The distribution of incomes per range of annual salary. Evidently the average salary range, from 15000 to 26000, is where most of the salaries are located. (MEF IT 2011)

The comparison of the two graphs shows an equivalent purchasing power in the two sides of the border, regardless of the different taxation systems that keep the Slovene neto lower (but with higher social services). Below the table showing the risk of poverty rate (average 12%) in Slovenia. Figure in Nova Gorica is similar.

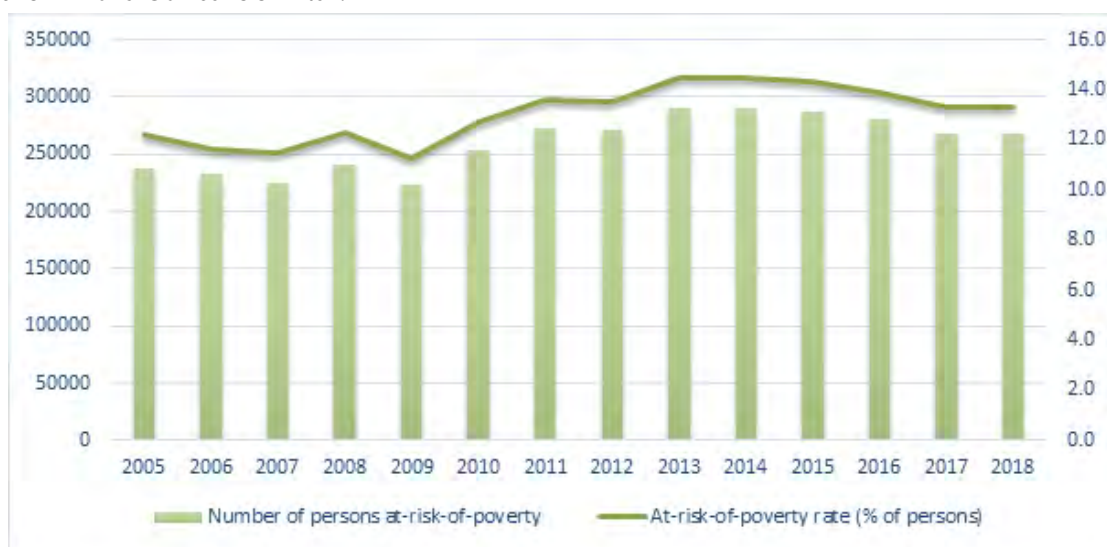


Figure 5. 63: Risk of poverty in Slovenia.

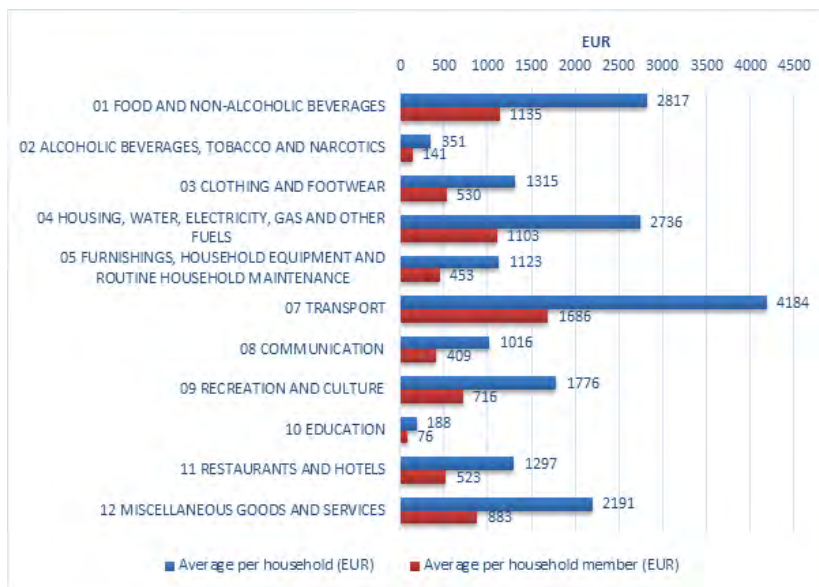
Ownership of durable assets (e.g., rate of owners of their residence, rate of renters, shared accommodation, free accommodation)

		2011		2015		2018	
		Number of dwellings	Number of occupants	Number of dwellings	Number of occupants	Number of dwellings	Number of occupants
SLOVENIA	Type of ownership -TOTAL	670,127	1,989,341	674,463	1,995,511	680,005	1,992,810
	Owner-occupied dwellings	522,672	1,656,525	547,799	1,706,170	549,449	1,691,687
	Rented dwellings	62,152	148,432	55,213	135,201	52,586	128,155
	Dwellings in other types of ownership	85,303	184,384	71,451	154,140	77,970	172,968
Nova Gorica	Type of ownership -TOTAL	11,057	31,066	11,022	30,920	11,021	30,787
	Owner-occupied dwellings	8,670	25,721	8,959	26,107	8,921	25,759
	Rented dwellings	988	2,371	842	2,066	811	2,056
	Dwellings in other types of ownership	1,399	2,974	1,221	2,747	1,289	2,972

Table 5. 22: N. of dwellings and their occupation in Slovenia and Nova Gorica in 10 years.

The above table shows (SURS2018) the overall ownership and occupancy of dwellings in Nova Gorica compared to the national situation. The picture shows a quite positive trend, where most dwellings are occupied, explaining about the difficulty in finding accommodation in the city and the policies of the Municipality to build new blocks.

Current expenditures (electricity, gas, food, etc.). A specific figure for the local context is not available in both cities. Below the Slovene national figures (surs 2018) that displays how expenditures are run on average, with important shares for transport (car) and household utilities



In parallel to this the Italian figure is partly different, but too wide to be described with any sense. However, the main axes of expenditure are the same, indicating that there is a need to invest in **alternative** services to support these costs.

For example, in Nova Gorica the "supposed" transport cost should be close to 0 considering the solutions adopted as free bus, bike sharing (free the first 30 minutes) and pedestrianization

Figure 5. 64: Current expenditure for dwellings through different parameters and services in Slovenia
Poverty rate in Slovenia is decreasing, being at 12% in 2018. In the region of Nova Gorica this percentage is confirmed. Below a figure of the risk of poverty in the country and the region.



Figure 5. 65: Map of the poverty risk in Slovenia. Source: SURS, 2020

Living conditions. The data describing housing conditions are based on the results of SILC. Because of the rounding of the results, sometimes the totals do not add up. 37% of households in the Goriška statistical region had bad dwelling conditions. There were 6% not adequately warm households and 9% households that were too dark. 10% of households had problems with noise and 15% of households had environmental problems. The share of households with crime problems was 10%. The comparison between the Goriška statistical region and Slovenia is shown in the table below.

Housing conditions	Goriška statistical region	Slovenia
Bad dwelling conditions	37	23
Not adequately warm dwelling	6	4
Too dark dwelling	9	6
Problems with noise	10	15
Environmental problems	15	17
Crime in the area	10	8

Table 5. 23: Housing conditions (in share) in Goriška statistical region compared to the national level, 2018 (SURS 2018)

About the living conditions in Slovenia and the region, other graphs can talk about an overall satisfaction about environment and quality of social interactions, more than economic (SURS 2018)

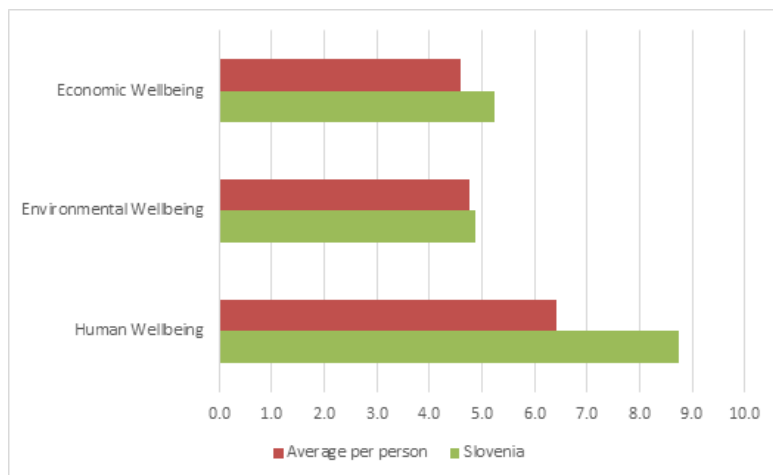


Figure 5. 66: Economic, environmental and human wellbeing measurement Slovenia



Figure 5. 67: Picture of the Panovec wood in Nova Gorica

Housing affordability. The figures above have shown that housing in the area is not a relevant issue. Nova Gorica is lacking in housing, but a huge offer is given by Gorizia. The obstacle is more the administrative differences than affordability. An example in the below table (SURS 2018)

		% of households ^[1]
Slovenia	A heavy burden	35
	Somewhat a burden	53
	Not burden at all	12
Goriška	A heavy burden	34
	Somewhat a burden	55
	Not burden at all	12

Table 5. 24: House affordability and perception as overall burden in Goriška (SURS 2018)

Houses without central heating. Most housing in the urban context is transitioning from central to individual/separated heating. This is opposite to the efficiency of energy, but the market is pushing for separate solutions.

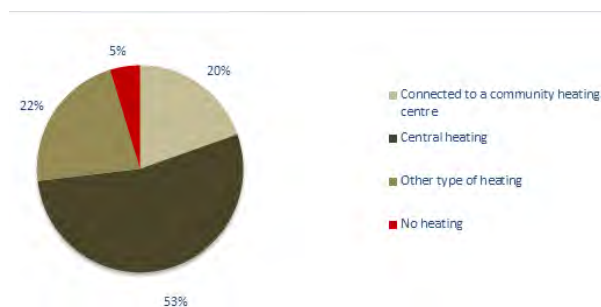


Figure 5. 68: House heating and comfort conditions in Nova Gorica in 2018



Figure 5. 69: A housing block in front of the Koren stream, Nova Gorica Corridor area



Figure 5. 70: The Slovene perception about managing/renting/owning a dwelling. Similar figures in three different conditions.

Prices (houses, rents, construction costs, etc.). As anticipated, the real estate costs in the region are lower than in the respective countries, especially bigger cities, in specific Ljubljana and Trieste/Udine.

We reported both Nova Gorica and Gorizia, that put in evidence the advantages in Gorizia, also considering the exceptional “heritage” characteristics of old Gorizia architectures.

The progressive, 5 years, selling costs in Nova Gorica

Type of real estate\year	2015	2016	2017	2018
Apartments				
Sample number	91	91	117	75
Average price (EUR/m ²)	1,480	1,400	1,560	1,620
Houses				
Sample number	29	34	39	20
Average contract price (EUR)	108,000	94,000	108,000	97,000

Table 5. 25: evolution of the real estate market in costs in Nova Gorica in the last 6 years

..And the connected renting costs

	Year	2016			2017		
	Fond	Sample size	Median (EUR)	Average (EUR/m ²)	Sample size	Median (EUR)	Average EUR/m ²
SLOVENIA	324,810	5,953	240	5.2	5,579	250	5.3
Nova Gorica	5,830	124	200	4.2	115	250	4.7
to 41 m ²		28	150	5.5	34	200	6.6
41-71 m ²		66	200	4.1	61	250	4.5
71 m ² and +		30	320	3.9	20	260	3.6

Table 5. 26: renting costs in Nova Gorica

This is a figure of the real estate market in Gorizia in 2021 (August, mercato-immobiliare)

Typology	Selling Eur/sqm	Rent Eur/sqm/Month	% Variation in 3 Months
Apartment	€ 1.350	€ 7,5	+2,50%
Attic	€ 2.350	-	+17,55%
Two-Families Block	€ 1.150	-	+0,57%
2 Rooms	€ 1.700	€ 8,8	+11,38%
Independent house	€ 1.200	€ 7	+1,67%
Semi-Indep.House	€ 1.100	€ 5,5	-2,82%
Cottage	€ 500	-	+4,46%
Commerce	€ 900	€ 8,1	-1,88%
mansarda	€ 1.200	€ 9,3	+7,96%
1 room	€ 1.500	€ 8,8	-0,97%
5 rooms	€ 1.300	€ 7,1	+2,07%
4 rooms	€ 1.300	€ 7,1	+6,98%
3 rooms	€ 1.350	€ 7,2	+5,44%
Office	€ 1.050	€ 7,4	+1,98%
Villa	€ 1.300	€ 7,3	+0,18%

Table 5. 27: Real estate in Gorizia in 2021

Tourism/Leisure/culture/sport expenditure. The Slovene report on Tourism in 2017 does focus on the national situation and the most attractive places. Nova Gorica counts an important n. of arrivals, but does not give good figures in overnight stays (in fact in the table is missing among the positive)

Highest number of overnight stays

Municipality	Number of overnight stays
Piran/Pirano	738.744
Ljubljana	570.214
Bled	381.260
Brežice	307.303
Bohinj	292.191
Kranjska gora	250.582
Bovec	226.513
Izola/Isola	205.315
Radovljica	180.457
Ankaran/Ancarano	179.244

Table 5. 28: tourism figures in Slovenia in 2017. Source Slovenia Info 2017

Municipalities with the highest number of arrivals

- **Piran (534.874)**
- **Izola (111.896)**
- **Nova Gorica (96.028)**

Nova Gorica is counting the third number of arrivals, but tourists are not staying overnight in the city. The programme of GOBorderless 2025 may revert this trend, also considering the increase of tourism in Gorizia.

In the data collected, we put the enterprises working in the tourism sector in Gorizia province (including the airport, coast and Grado), compared to its region in 2019 that shows the lowest business in the region, even less than Pordenone that does not have specific tourist attractions (Source UNioncamere). The difficulty in getting data of tourism in the region is certainly something that needs to be improved.

Provincia	Imprese registrate	% su totale artigianato	Addetti
Gorizia	327	13,8%	884
Pordenone	792	11,0%	2.449
Trieste	707	16,0%	1.803
Udine	1.609	11,8%	4.486
FVG	3.435	12,4%	9.622

Table 5. 29: Tourism figures in Friuli Venezia Giulia including Gorizia in 2019.

However, getting data about tourism in Gorizia and Nova Gorica is very hard. In the regional newspaper, *il Piccolo*, there was a notice that in 2019 the n. of tourists in the city decreased by -4.5% with respect to previous year.

Trust of consumers. The only figure found in this respect regards Slovenia as a whole and was published by OECD in 2020. Similar figure for Italy does not make sense considering the dimension of the country.



Figure 5. 71: Trust of consumers in Slovenia compared to OECD countries in evolution of 15 years.

5.2.3.2. Employment

Competitiveness. Specific data are not given for Nova Gorica. A framework is offered by the Slovene picture. This shows a higher cost and salary for jobs related to infrastructure supply, IT, and finance, lowest for construction and administration.

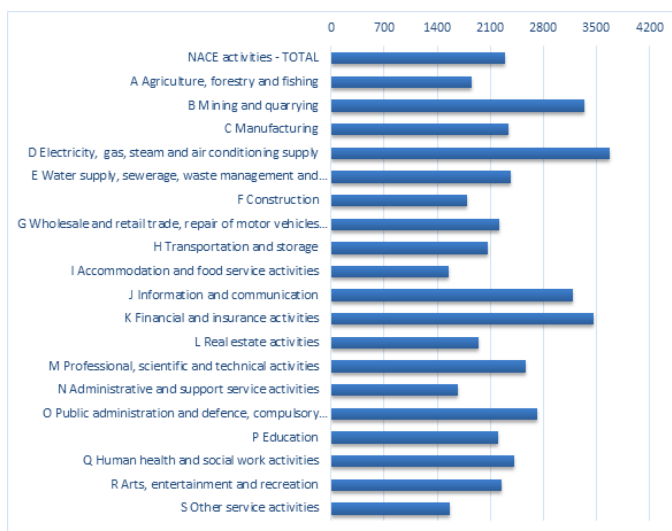


Figure 5. 72 Monthly labour cost per kind of job (SURS 2018)



Figure 7. 73: Increase of the labour cost in Slovenia in 1 year, figures 2019 (SURS)

Activity and Employment rate.

	Population (SURS 2019)
Population aged 15+ years - TOTAL	27,214
Active (labour force) - Total	14,494
Employed	13,519
Unemployed	975
Inactive - Total	12,720

Pupils and students	1,975
Pension recipients	9,147
Others	1,598

Table 5. 30: Activity and employment rate in Nova Gorica in 2019.

In Nova Gorica there were 31,799 inhabitants in 2019. 85.6% belong to the working age (population aged 15+ years) group. The active rate was 53.3%. Employment rate was 49.7% and the unemployment rate was 6.7%. There are some gender differences. Men have a higher employment rate and lower unemployment rate compared to women.

	Population aged 15+ years - total	Active	Activity rate	Inactive
NOVA GORICA Area	27,214	14,494	53.3	12,720
Nova Gorica city	11,180	6,031	53.9	5,149
Pristava Parish	339	174	51.3	165

Table 5. 31: Active population in Nova Gorica. Source: SURS, 2019

The number of employed persons is rising in Nova Gorica and the unemployment rate decreased from 8.6% in 2016 to 6.7% in 2019.

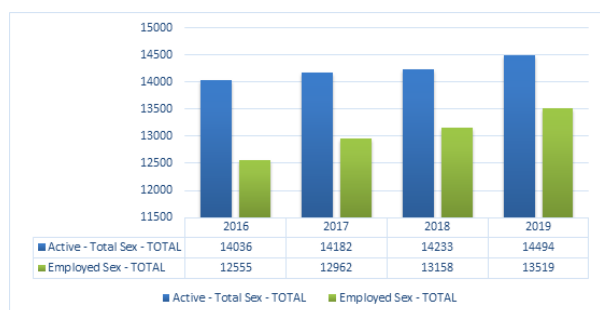


Figure 5. 73: Population distribution by activity for the municipality Nova Gorica, 2016–2019

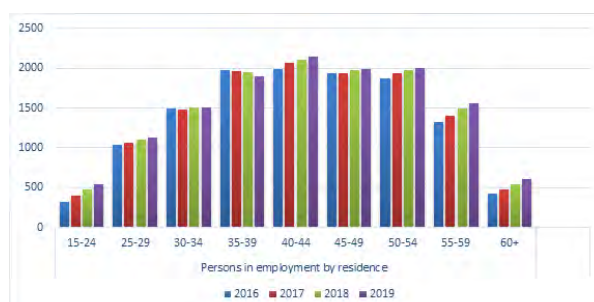


Figure 5. 74: Persons in employment by age groups in Nova Gorica municipality, 2016–2019

The figure below also shows a little tendency of movement for employment according to the level of education, showing that Nova Gorica attracts upper secondary and tertiary education employment (given also the presence of public institutions, health centres and university)

	By municipality of residence			By municipality of employment		
	2016	2017	2018	2016	2017	2018
Educational attainment - TOTAL	12,483	12,908	13,381	14,600	14,910	14,980
Basic or less	1,311	1,310	1,406	1,165	1,151	1,163
Upper secondary	6,721	6,902	7,164	8,026	8,090	8,011

Tertiary	4,451	4,696	4,811	5,409	5,669	5,806
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Table 5. 32: Persons in employment grouped by educational attainment and by the Nova Gorica municipality as of residence and as of employment, 2016–2018 Source: SURS, 2018

Important figure may regard the disability benefit in Nova Gorica, as shown below (ZPIZ 2020)

Type of invalidity benefit	Number of receivers
Partial disability pension / partial benefit	194
Temporary compensation	3
Disability benefit	215
Vocational rehabilitation allowance	4
Compensation for part-time work	4
Compensation for waiting for another suitable job	34
Compensation for lower pay in other relevant work	15
TOTAL	469

Table 5. 33: Receivers of disability benefits by type of benefit for the Nova Gorica municipality, 2020

Employment rate per economic and non-profit sector rate. The figure below refers to the entire statistical Goriška region, that insists on Nova Gorica..

Organizational form	Number	Employed	Share (%)
Non-profit organizations	327	434	1.6
Associations	1341	104	0.4
Sole proprietors	3510	2148	7.9
Companies	3179	24621	90.2
TOTAL	8357	27307	100.0

Table 5. 34: Number and employed in non-profit organizations, associations, sole proprietors, and companies for the Goriška statistical region, 2018 - SURS 2019

Employees in the agriculture, social, services, industrial sectors. The figure below refers to Slovenia. We could not find the specific one for Nova Gorica, although agriculture and manufacturing are important assets of the area and the region. Mostly in the region fruits and wine making are the essential agricultural destination.

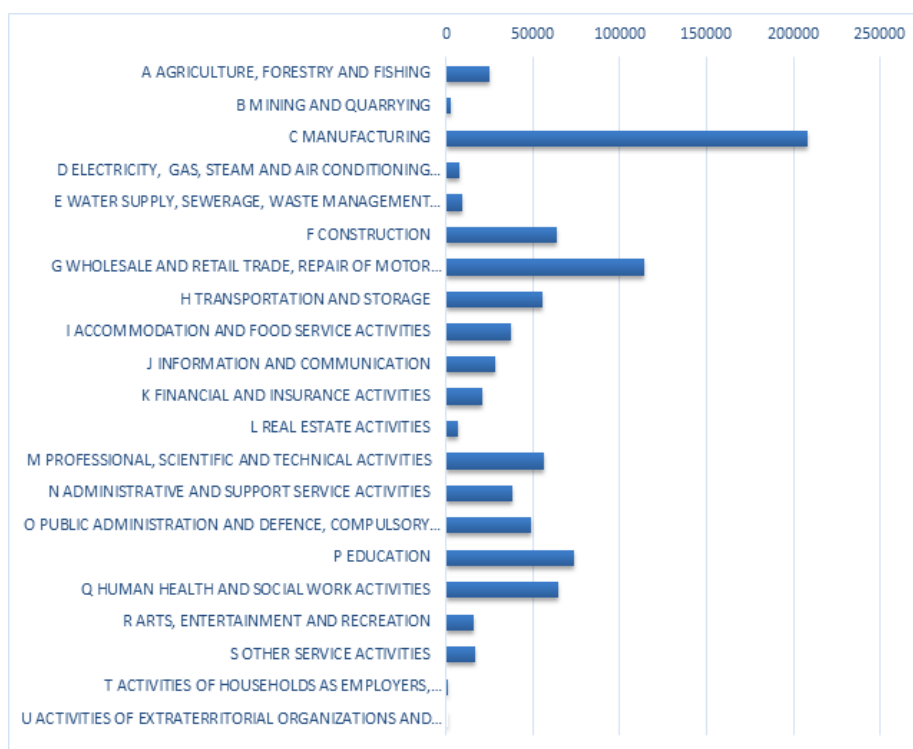


Figure 5.75: Persons in employment by activity sectors in Slovenia, 2019 - SURS 2019

with this figure for the Goriška region

	Companies			Sole proprietors			TOTAL (Source: AJPES, 2019)		
	Number	Employed	Tot. income (in K EUR)	Number	Employed	Tot. income (in K EUR)	Number	Employed	Tot. income (in K EUR)
AGRICULTURE, FORESTRY AND FISHING	40	224	39,735	75	52	6,814	115	276	46,549
MINING AND QUARRYING	3	67	13,542	3	8	1,135	6	75	14,677
MANUFACTURING	491	11,164	1,535,497	469	346	47,481	960	11,510	1,582,978
ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	42	657	178,960	29	3	779	71	660	179,739
WATER SUPPLY, SEWAGE, WASTE AND REMEDIATION ACTIVITIES	13	519	57,616	1	0	13	14	519	303,132
CONSTRUCTION	299	2,040	250,877	746	499	52,255	1045	2,539	303,132
HUMAN HEALTH AND SOCIAL WORK ACTIVITIES	47	248	16,972	30	2	522	77	250	17,494

<i>All activity sectors</i>	3,179	24,621	4,073,582	3,510	2,148	271,537	6,689	26,769	4,345,119
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Table 5. 35: Number of business subjects, their income and employed persons by activities in Goriška statistical region, 2018

Unemployment rate per economic and non-profit sector. No specific figures were found in this respect in both cities.)

Unemployment rate (youth rate, women rate...). The rate has been evidenced for Slovenia, with a general increase of unemployment in almost 10 years.

	Registered unemployment rate	Registered unemployment rate for men	Registered unemployment rate for women	Registered unemployment rate for Slovenia
2005	7.2	6.6	8.0	10.2
2006	6.4	5.7	7.4	9.4
2007	4.7	4.1	5.6	7.7
2008	4.0	3.7	4.5	6.7
2009	7.0	6.6	7.5	9.1
2010	8.5	8.5	8.6	10.7
2011	10.4	10.7	10.1	11.8
2012	11.3	11.4	11.1	12.0
2013	12.8	12.9	12.6	13.1
2014	12.2	12.0	12.6	13.1
2015	11.2	10.4	12.2	12.3
2016	9.6	9.0	10.3	11.2

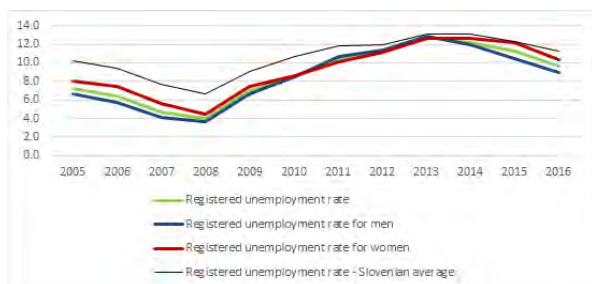


Figure 5.s 76 and 65: Registered unemployment rate (labour force) by sex, Nova Gorica municipality and Slovenia, 2005–2016 - SURS 2016

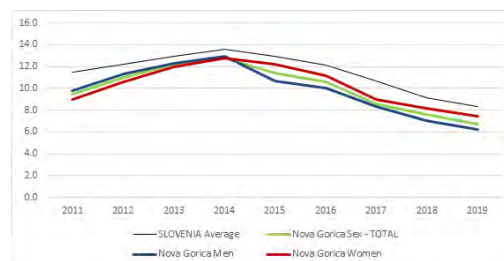


Figure 5. 77: 2019 is confirming the decrease of unemployment, both for men and women. SURS 2019

Unemployment rate		2011	2012	2013	2014	2015	2016	2017	2018	2019
Slovenia	Average	11.5	12.2	12.9	13.6	12.9	12.1	10.7	9.1	8.3
Nova Gorica	Sex - total	9.5	11.0	12.2	12.8	11.4	10.6	8.6	7.6	6.7
	Men	9.8	11.3	12.3	12.9	10.7	10.0	8.3	7.0	6.2
	Women	9.0	10.6	12.0	12.8	12.2	11.2	9.0	8.2	7.4

Table 5. 36: Unemployment rate by sex, Nova Gorica municipality and the Slovenian average, 2011-2019 (cross-country comparability)

Short-term contracts rate. Data is available for the Cohesion region, south Slovenia, and show a good tendency for stable employment.

SLOVENIA (SURS 2019)	Employees - TOTAL	848,000
	.. In labour relation	814,000
 TEMPORARY EMPLOYMENT	80,000
 PERMANENT EMPLOYMENT	734,000
	.. Student work	27,000
	.. Others form of work	7,000
Cohesion region Zahodna Slovenija (SURS 2019)	Employees - TOTAL	408,000
	.. In labour relation	387,000
 TEMPORARY EMPLOYMENT	37,000
 PERMANENT EMPLOYMENT	350,000
	.. Student work	17,000
	.. Others form of work	4,000

Table 5. 37: Employees by type of work, cohesion region, 2019

Industrial plants concentration rate in social housing districts. This information was not available. However, the corridor is not interested in the evident concentration of industry.

5.3.3.3. Innovation

Innovation (i.e., patents). There is no available data on the innovative start-ups. We spoke to the Technology park Primorska and the Chamber of Commerce and Industry of Northern Primorska where they had no such data, but did say there are competitions and open calls which target this group of businesses. On a regional level, every year an event for the best innovative businesses is held on behalf of the Chamber of Commerce and Industry of Northern Primorska – *Podelitev priznanj inovacijam v regijah*. 2019 held the XXIV. meeting - *Srečanje gospodarstvenikov Primorske*. 107 businesses or individuals applied to the call for best innovative businesses and 18 were given a special recognition. But still, the number of applied businesses or individuals to the call for the best innovative businesses does not represent nor reflect the actual number of innovative businesses. There are many innovative companies which don't apply to such calls (Volk, 2020).

Research and development. The Gross domestic expenditure on R&D (1000 EUR) in the Goriška statistical region in 2018 (SURS 2018) is shown below, evidencing a relatively low amount considering the n. of regions and the presence of more than one university.

Source: SURS, 2018	2018	
Slovenia	892,724	
Goriška statistical region	47,108	

Table 5. 38: Gross domestic expenditure on R&D (1000 EUR), Goriška statistical region, 2018

Regardless of the importance of this sector for the regional GDP

	2018
Gross domestic expenditure on R&D (% of regional GDP)	2.01
Gross domestic expenditure on R&D (% of total Slovenia)	5.3
Researchers by region (% of total Slovenia)	7.0

Table 5. 39: Research and development indicators, Goriška statistical region, 2018 - SURS 2018

The following prospects refer to the ARRS Funding scheme for research in different steps of application:

Scientific disciplines	Resources EUR	Resources (%)
Natural Sciences and Mathematics	5,888,113	21.6
Engineering	5,373,495	19.7
Medical Sciences	3,682,601	13.5
Biotechnical Sciences	2,684,695	9.9
Social Sciences	2,862,449	10.5
Humanities	4,317,398	15.8
Interdisciplinary research	2,436,723	8.9
TOTAL	27,245,474	100

Table 5. 40: ARRS funding of applicative projects by scientific disciplines, 2019

Scientific discipline	Resources (EUR)	Resources (%)
Natural Sciences and Mathematics	501,035	7.8

Engineering	3,061,978	47.9
Medical Sciences	352,023	5.5
Biotechnical Sciences	809,491	12.7
Social Sciences	384,203	6.0
Humanities	367,350	5.7
Interdisciplinary research	917,805	14.4
TOTAL	6,393,885	100

Table 5. 41: ARRS funding of postdoctoral projects by scientific disciplines, 2019

Scientific discipline	Resources (EUR)	Resources (%)
Natural Sciences and Mathematics	708,862	20.5
Engineering	881,737	25.5
Medical Sciences	636,197	18.4
Biotechnical Sciences	190,378	5.5
Social Sciences	275,490	8.0
Humanities	448,365	13.0
Interdisciplinary research	315,553	9.1
TOTAL	3,456,581	100

Table 5. 42: ARRS funding of postdoctoral projects by scientific disciplines, 2019

Businesses and workers. In terms of business creation, Nova Gorica is pretty dynamic thanks to its stable cooperation with the Italian border. Its figures are so positive, also in terms of employment rate. An additional benefit is the presence of the Universities and of the technological incubator in the nearby town, Sempeter.

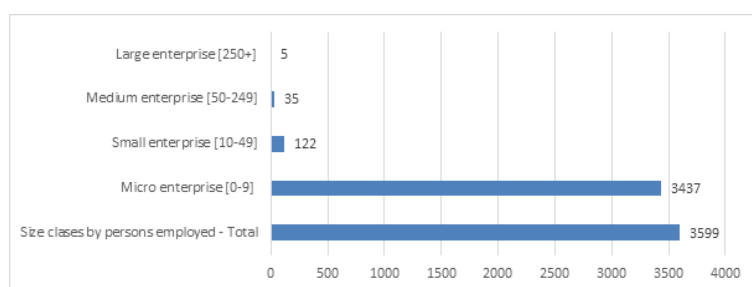


Figure 5.78: the Number of enterprises by size classes in Nova Gorica municipality, 2018,

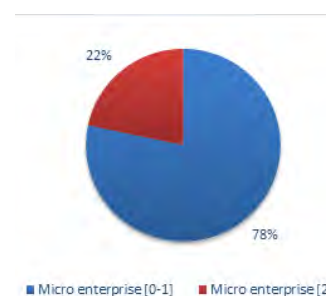


Figure 5. 79: the Micro enterprises by number of employed people in Nova Gorica, 2018

This is the situation in numbers in Gorizia (CamCom2020), which shows some increments (manufacturer) and some decrements (building sector).

Provincia di GORIZIA												
SETTORI E DIVISIONI DI ATTIVITA'	2018				2019				2020			
	2018	%	ATT	%	2019	%	ATT	%	REG	%	ATT	%
A - AGRICOLTURA, SILVICOLTURA, PESCA	1.107	10,7	1.095	12,3	1.087	10,8	1.078	12,4	1.080	10,9	1.071	12,5
B - ESTRAZIONE DI MINERALI DA CAVE E MINIERE	10	0,1	9	0,1	9	0,1	7	0,1	9	0,1	7	0,1
C - ATTIVITA' MANIFATTURIERE	1.054	10,2	857	9,6	1.037	10,3	843	9,7	1.020	10,3	837	9,8
D35 - FORNITURA DI ENERGIA ELETTRICA, GAS, VAPORE E ARIA CONDIZIONATA	7	0,1	6	0,1	6	0,1	6	0,1	7	0,1	7	0,1
E - FORNITURA DI ACQUA, RETI FOGNARIE, ATTIVITA' DI GESTIONE RIFIUTI, ECC.	32	0,3	28	0,3	31	0,3	28	0,3	29	0,3	27	0,3
F - COSTRUZIONI	1.545	15,0	1.374	15,4	1.432	14,2	1.269	14,6	1.411	14,2	1.262	14,7
G - COMMERCIO ALL'INGROSSO E AL DETTAGLIO, RIP. AUTOVEICOLI E MOTOCICLI	2.469	23,9	2.197	24,7	2.380	23,6	2.105	24,3	2.305	23,2	2.042	23,8
G45 Commercio all'ingrosso e al dettaglio e riparazione di autoveicoli e motocicli	253	2,5	237	2,7	245	2,4	232	2,7	236	2,4	222	2,6
G46 Commercio all'ingrosso (escluso quello di autoveicoli e di motocicli)	870	8,4	729	8,2	841	8,4	711	8,2	810	8,1	685	8,0
G47 Commercio al dettaglio (escluso quello di autoveicoli e di motocicli)	1.346	13,1	1.231	13,8	1.294	12,9	1.162	13,4	1.259	12,7	1.135	13,2
H - TRASPORTO E MAGAZZINAGGIO	318	3,1	273	3,1	309	3,1	267	3,1	306	3,1	262	3,1
I - ATTIVITA' DEI SERVIZI ALLOGGIO E RISTORAZIONE	1.098	10,7	946	10,6	1.088	10,8	931	10,7	1.094	11,0	936	10,9
J - SERVIZI DI INFORMAZIONE E COMUNICAZIONE	229	2,2	206	2,3	229	2,3	204	2,4	227	2,3	198	2,3
K - ATTIVITA' FINANZIARIE E ASSICURATIVE	216	2,1	201	2,3	206	2,0	191	2,2	209	2,1	195	2,3
L68 - ATTIVITA' IMMOBILIARI	431	4,2	385	4,3	428	4,3	386	4,5	428	4,3	388	4,5
M - ATTIVITA' PROFESSIONALI, SCIENTIFICHE E TECNICHE	332	3,2	305	3,4	337	3,3	309	3,6	337	3,4	312	3,6
N - NOLEGGIO, AGENZIE DI VIAGGIO, SERVIZI DI SUPPORTO ALLE IMPRESE	323	3,1	287	3,2	318	3,2	289	3,3	316	3,2	287	3,3
O84 - AMMINISTRAZIONE PUBBLICA E DIFESA, ASS. SOCIALE OBBL.	3	0,0	1	0,0	2	0,0	1	0,0	2	0,0	1	0,0
P85 - ISTRUZIONE	40	0,4	37	0,4	39	0,4	34	0,4	40	0,4	34	0,4
Q - SANITA' E ASSISTENZA SOCIALE	76	0,7	68	0,8	80	0,8	70	0,8	77	0,8	68	0,8
R - ATTIVITA' ARTISTICHE, SPORTIVE, INTRATTENIMENTO, ECC.	120	1,2	107	1,2	124	1,2	112	1,3	131	1,3	118	1,4
S - ALTRE ATTIVITA' DI SERVIZI	550	5,3	519	5,8	561	5,6	533	6,2	562	5,6	530	6,2
X - IMPRESE NON CLASSIFICATE	349	3,4	2	0,0	363	3,6	1	0,0	359	3,6	2	0,0
TOTALE	10.309	100,0	8.903	100,0	10.066	100,0	8.664	100,0	9.949	100,0	8.584	100,0

Table 5. 43: Registered and active companies in Gorizia per economic sector 2018-2020.

Trust in businesses. We could find a 10 year national figure about the trust in manufacturing, showing a present decrease in respect to the increments of the last 5 years (SURS 2020)



Figure 5. 80: Confidence (Trust) indicator in manufacturing for Slovenia, 2005–2020

5.2.3.4. Activity sectors

Agriculture production. This was already described in the previous sections

Cultural and creative industries. As an additional figure of the previous section, we report the following employment scheme for the region

	Companies		individual comp.		Total	
	Number	Employed	Number	Employed	Number	Employed

Information and communication	140	534	1306	174	1446	708
Arts, entertainment, and recreation	58	1907	68	6	126	1913

Table 5. 44: Number of companies and sole proprietors and persons employed in the Information and communication activity sector and Arts, entertainment, and recreation sector (SKD 2008) in Goriška statistical region, 2018 - AJ PES 2019

Tourism characterization. The figures show a main provenance of tourists from Italy and a relatively low overnight stay. They refer to the existence of the casino and the consideration of the region and Nova Gorica as steps towards other destinations.

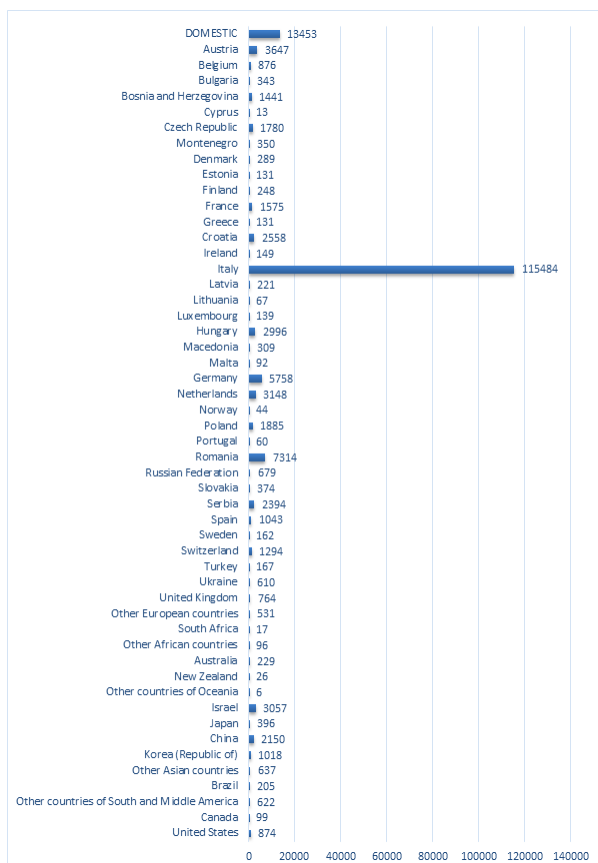


Figure 5. 82: Tourist arrivals by country of provenance, Nova Gorica municipality, 2017

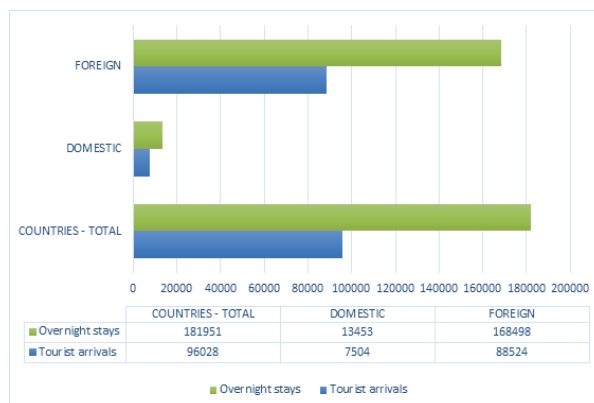


Figure 5. 81: Tourist arrivals and overnight stays, Nova Gorica municipality, 2017 - SURS 2017

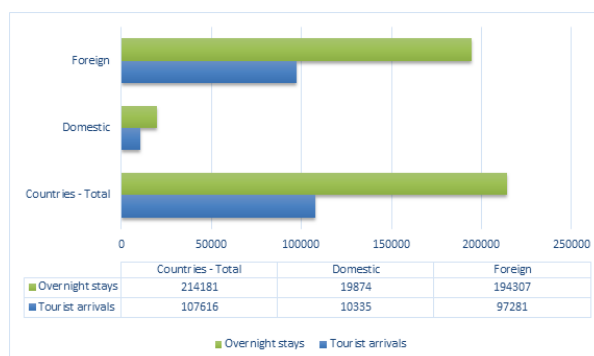


Figure 5. 83: Tourist arrivals and overnight stays, Nova Gorica municipality, 2018 - SURS 2018

clienti	2019	2020	Var. % 2019-2020
AR			
ESERCIZI ALBERGHIERI	103.605	51.161	-50,6
Italia	62.842	38.223	-39,2
Estero	40.763	12.938	-68,3
ESERCIZI EXTRALBERGHIERI	33.266	19.053	-42,7
Italia	12.417	11.435	-7,9
Estero	20.849	7.618	-63,5
TOTALE	136.871	70.214	-48,7
Italia	75.259	49.658	-34,0
Estero	61.612	20.556	-66,6

Table 5. 45: Arrivals in the Gorizia Province in 2018 and 2019 (CamCom)

ESERCIZI ALBERGHIERI	2,21	2,83	28,2
Italia	2,13	2,69	26,4
Estero	2,34	3,27	39,7
ESERCIZI EXTRALBERGHIERI	5,80	5,46	-5,8
Italia	4,48	5,10	13,8
Estero	6,58	6,00	-8,8
TOTALE	3,08	3,55	15,1
Italia	2,52	3,24	28,9
Estero	3,78	4,28	13,4

Table 5. 46: Average overnight in Gorizia province in 2018 and 2019 (CamCom)

Stores and commercial activities.

Trade and service activities	Number of registered business subjects	Employed	Total income (in 1000 EUR)
Trade, maintenance, and repair of motor vehicles	1,327	3,333	1,057,307
Transportation and storage	413	1,633	234,806
Restaurants	457	1,139	81,466
Information and communication	208	540	50,384
Real estate	113	90	12,655
Professional, scientific, and technical activities	900	1,633	462,237
Other business activities	210	320	27,523
Total	3,628	8,688	1,926,378

Table 5. 47: Number of registered business subjects, persons employed and total income in trade and service activities (SKD 2008), Goriška statistical region, 2018 - AJ PES 2019

Café, bars and pubs. We could not find numbers and statistics. However bars and restaurants are not missing in the two cities that compensate each other in this respect, offering a huge variety of goods and services. On average however, a higher community of “migrants” for bars is of Slovenes going to Gorizia.

Restaurant and catering services. For the Goriska region

	Companies			Individual companies		
	Number	Employed	Total income (1000 EUR)	Number	Employed	Total income (K EUR)
Restaurants	184	719	46,839	273	420	34,627

Table 5. 48: Restaurants in the Goriška region in 2019 - AJ PES 2019

If a comment could be made, Gorizia is higher in quality and variety of restaurants (cuisine and ambience), although raising the costs slightly. Nova Gorica is more devoted to street food and typical Balkan cuisine.

5.2.3.5. Facilities

Cultural facilities. There are 9 active non-governmental organizations in the public interest in the municipality: Zveza kulturnih društev Nova Gorica, Srbsko kulturno društvo Sloga, Glasbeno društvo “nova” Nova Gorica, Foto klub Nova Gorica, Društvo humanistov Goriške, Prosvetno društvo “France Bevk” Prvačina, Kulturno društvo Goriški komorni zbor, Kulturno društvo “Slavc”

Solkan and Zavod BridA. Below a list of businesses registered in the arts and entertainment sector in Nova Gorica.

SKD activity	SKD code	Number of businesses
Performing arts	90.010	39
Support activities to performing arts	90.020	14
Artistic creation	90.030	82
Libraries	91.011	1
Activity archives	91.012	1
Museum activities	91.020	3
Protection of cultural heritage	91.030	2
Botanical and zoological gardens and nature reserves	91.040	2
Activities of casinos	92.001	6
Operation of sports facilities	93.110	3
Activities of sport clubs	93.120	65
Fitness facilities	93.130	4
Other sport activities	93.190	68
Activities of amusement parks	93.210	1
Activity ski resorts	93.292	1
Elsewhere classified leisure activities	93.299	19

Table 5. 49: Businesses registered under activities R - ARTS, ENTERTAINMENT AND RECREATION, Nova Gorica municipality, 2020 - PISO 2020.

Educational facilities, kindergartens, schools, higher education facilities (public and private). This is the full list of educational opportunities in Nova Gorica. This may find additional data in the Gorizia side, with a similar figure.

Educational facilities (by SKD 2008 SVET, šolstvo, Nova Gorica)	SKD code	Number of facilities / businesses
Kindergarten	85.100	20
Elementary education	85.200	13
General secondary education	85.310	1
Technical and vocational secondary education	85.320	1
Post-secondary non-tertiary education	85.410	0

post-secondary education	85.421	1
Higher education	85.422	4
Education, training and education in the field of sports and recreation	85.510	47
Education, training and education in the field of arts and culture	85.520	19
Driving school	85.530	5
Elsewhere classified education, further education and training	85.590	39
Educational support activities	85.600	5

Table 5. 50: Number of educational facilities in Nova Gorica municipality, 2020 - PISO 2020

Recreational and leisure spaces, sports facilities (public and private).

Operation of sports facilities	93.110	3
Activities of sport clubs	93.120	65
Fitness facilities	93.130	4
Other sport activities	93.190	68
Activities of amusement parks	93.210	1
Activity ski resorts	93.292	1
Elsewhere classified leisure activities	93.299	19

Table 5. 88: Businesses registered under activities R - ARTS, ENTERTAINMENT AND RECREATION with a focus on recreational facilities, Nova Gorica municipality, 2020 - PISO 2020

5.3. Parishes/quarters levels

Delimitation criteria (geographical, administrative ...).

The delimitation of the parish and subsequently the corridor was made by adopting the line of the Koren stream from its exit of the Panovec and wood towards the border with Gorizia. On its right bank the stream passes on of the initial socialist neighbourhoods of the city, and on its left some land to be redeveloped, including students housing, community orchards and sport facilities (soccer field). More on the left the space is encountering some important cultural assets, underused by the local citizens, even due to some closures in the past, in specific the Kostanjevica monastery, the Rafut Villa and the former main border line. The border line defines the actual, administrative national separation between Slovenia and Italy, and the cities, Nova Gorica and Gorizia.

5.3.1. Territorial description

Aerial view of the Study area with administrative boundaries and identification of the deprived areas

Area (km²) 65 Hectares. (Sources ARSO Slovenia)



Figure 5. 84: A land map of the area of the corridor, source Google map



Figure 5. 85: A rough measuring of the area of the corridor concentrating on the green development

5.3.1.1. Biophysical characterization

Geology. The area is characterised by a small hill and a built plane cut by a stream descending from the local wood. The soil is not rocky and fully productive from the agricultural viewpoint.

Geomorphology, Altimetry.

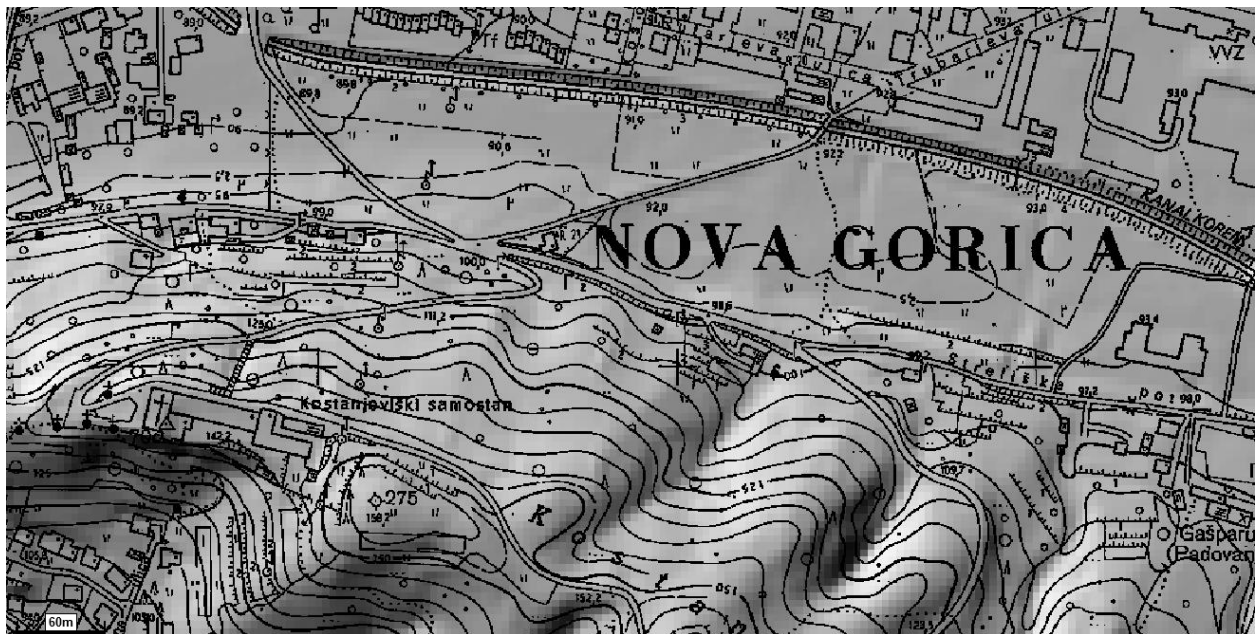


Figure 5. 86: Map showing the altimetry curves of the corridor

Slopes. Below are 2 pictures of the Slopes from the Kostanjevica monastery, on the highest part of the corridor.



Figure 5. 87: Image of the Koren stream bank watching south and the community gardens



Figure 5. 88: Image of the walking path towards Kostanjevica from Pristava and Rafut

We may add the stream banks that are pretty steep and presently could be seen as partly dangerous. See pictures below.



Figure 5. 89: Image of the Koren stream, may 2020



Figure 5. 90: Image of the path along the Koren stream, south bank towards Panovec

Landslide risk. there are no landslide risks.

Slopes aspect. The corridor slopes are gentle too steep on the north side (5-10%), steeply on the south side (25%). Can be done easily by walk, less easily by bike, although on the north side of the Kostanjevica hill the bike lane is under design phase following the existing road.

Hydrography and artificial water bodies.

The Koren is an artificial channel excavated as a sewage channel in the early years of Nova Gorica, collecting the water flows from the upper east part of the city, as well as the flooding waters from the Panovec wood, north side. To regulate the flow a dam was built East, before the settlement of Nova Gorica, and another, West, before the city of Gorizia. The water flow is higher in the Koren before entering Gorizia, passing from a max of 29 Cubic meters per minute in Gorizia to 18 in the channel of Gorizia (the stream in Gorizia was covered and left underground); this meant the need to imagine retention basins East and West, displayed below.

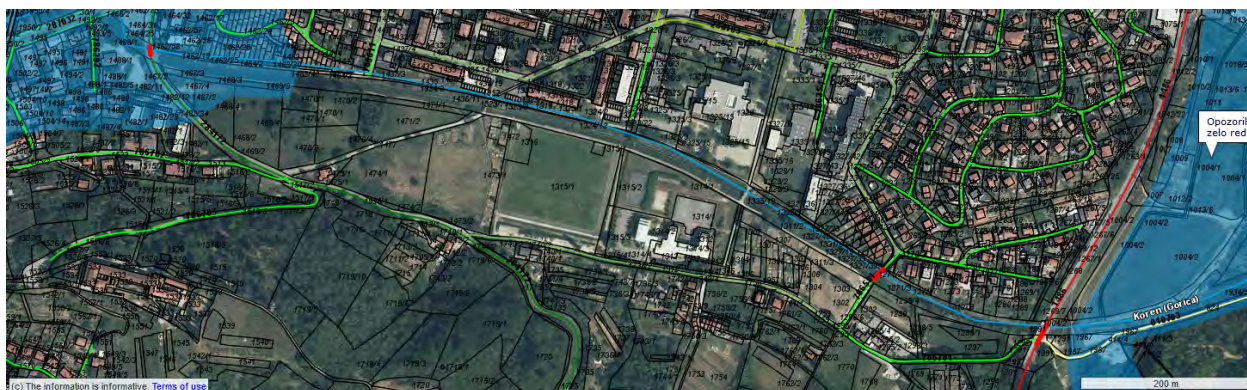


Figure 5. 91: Map showing the artificial hydrographic water system of the Koren area.

Wind circulation. As per the entire city, the main part of the corridor, north, from Kostanjevica to Nova Gorica is pretty windy, benefitting from the strong wind called Bura. The opposite side contained between Kostanjevica, Rafut and Rožna Dolina is less windy, but very good for Mediterranean species cultivation, as orange and lemon trees.

5.3.1.2. Land use/ land cover

Land Cover. Below the area of the corridor with the cadastral units.

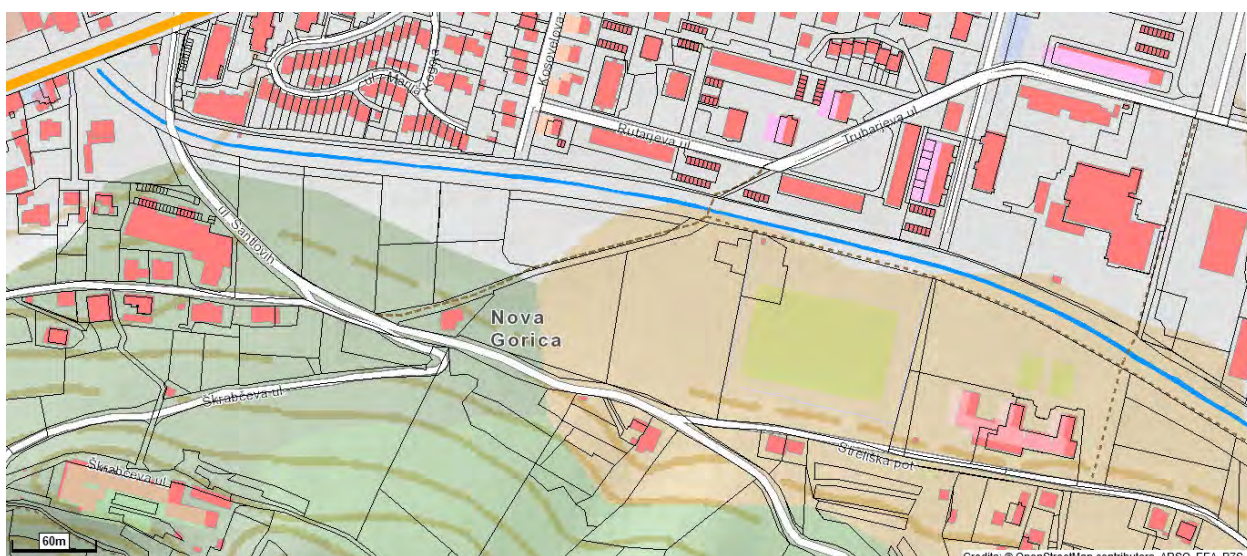


Figure 5. 92: Map displaying the cadastral units in the Koren area.

Land Use. The map below shows the use and destination of the area. Red is urban settlement, Yellow is the developing part, pink is urban forest/green, green is protected green areas.



Figure 5. 93: Map showing the use destination of the area.

Land register (private/public). The first map below shows the parcels and the private buildings, red, with private other constructions (i.e., garages, etc.) in blue.

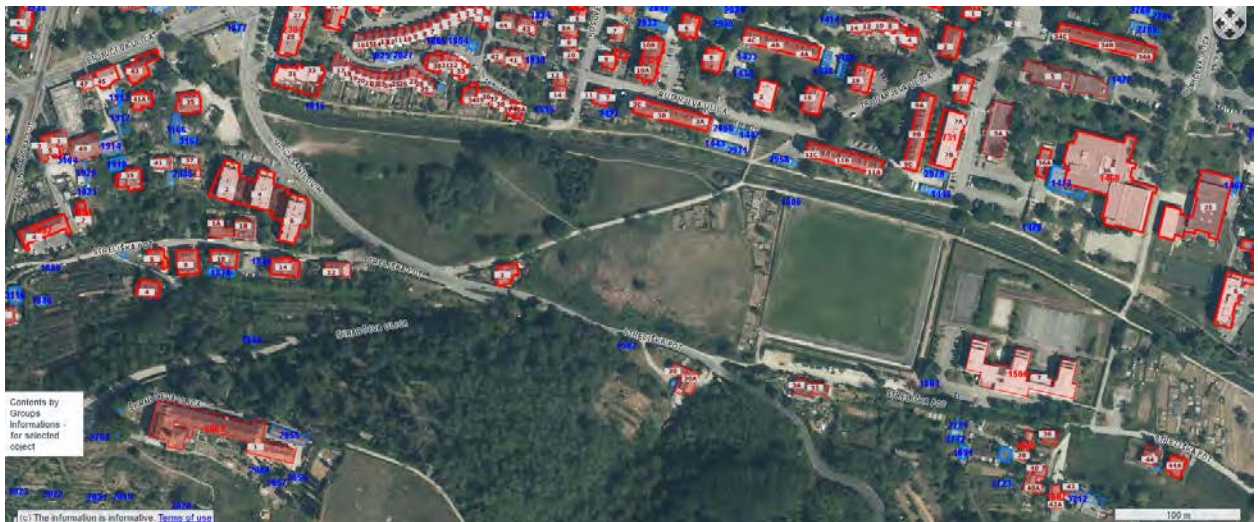


Figure 5. 94: Map showing the land register with private buildings (red residential, blue non residential)



Figure 5. 95: Lands owned by the Municipality of Nova Gorica, highlighted in Purple

The below map defines the areas: yellow areas are defining Residential areas, private or public.

Red are central purposes (schools, health units etc, "družbene stavbe"), pale green on the right is agricultural land K1 and K2 quality "kmetijsko zemljišče", dark green are green areas (Panovec).



Figure 5. 96: Map showing agricultural, building and “wild” protected areas.

We also report here the flooding risk in blue, considered rare. However, this is pretty important for the corridor considering the water flow reduction in the Koren passing from the Slovene side to the Italian side. New works are presently also taken over in the Koren bed in Gorizia, confirming the underground path of the stream.



Figure 5. 97: A map confirming a previous map about the flooding risk, especially towards the Italian side.

5.3.1.3. Transportation network and services

Road network (and hierarchy). Below a map showing the main roads of the corridor area, including the neighbourhood vehicle streets (light green) and wood street (Yellow)

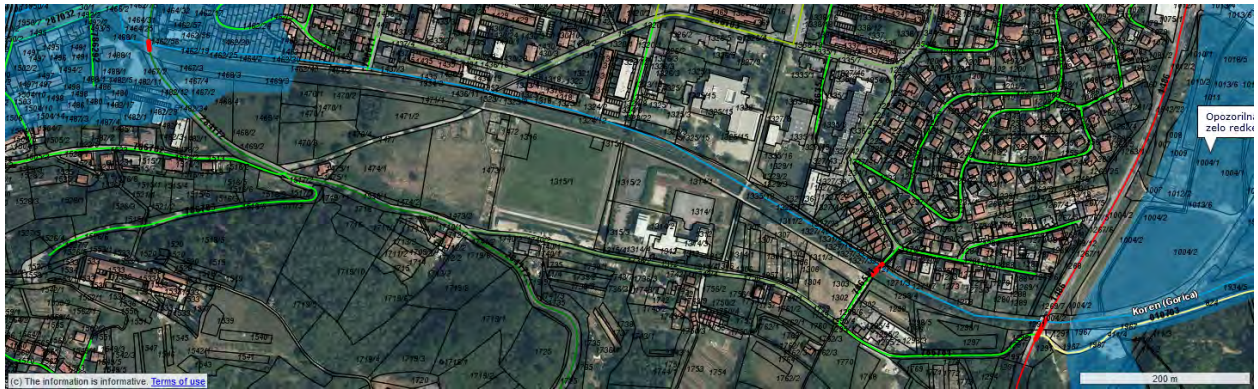


Figure 5. 98: Map showing the main roads network connected to the flooding risk

Railway network. The railway is “cutting” the corridor, dividing the two cities and running along the border in Slovene territory. However, it does not have an impact on the area. Nevertheless, the old railway station will be renovated as a focal investment of the new CultureCapital2025: it stands right in front of the corridor, in one of its potential expansions.

Subway network. No subways in the urban areas. The bus network is already described above but does not interest the corridor area.

Bicycle paths network. A new bike lane is under construction right along the Koren stream, on its north bank.

Facilities (cultural, Health, Educational, Sports, Religious, Administrative, Justice and Citizens protection). Almost the entire Koren basin is devoted to health, sport and educational facilities, hosting already student houses, soccer fields, and bike paths. On it there is still the municipal destination to the university campus.

Land devoted to roads. A precise estimation is not possible, however around 5% of the total area of the corridor, including bike/pedestrian and car road.

Land devoted to pedestrians. Around 3% for pedestrians.

Built areas. The built areas occupy nearly 10% of the corridor area.

Public transportation links. Public transport is a max 100m distance from the corridor axe. The corridor borders may be distant from public transport, but not more than 1 km.

Access to cultural facilities. Within the corridor most facilities are easily available (5 minute’s walk). Some parts of the corridor instead are meant to give “green isolation” to users, as the Rafut Park or the Kostanjevica Monastery wood.

Safety. Part of the corridor is provided with lights, some (the park and slope) less. There is however free, municipal Wi-Fi to be connected to the network.

Noise. The noise in the area is pretty low. There is a municipal road that is trafficked during the working hours (mostly 8-9 a.m. and 4-6 p.m.), but without severe noise peaks

Fragmentation analysis. The main fragmentation of the area is given by the Koren stream itself, that is cutting the corridor, and the border with Italy. The other barrier is given by the Kostanjevica hill, which is steep and thus provides a psychological obstacle to users, especially bikers. To climb the hill from the Koren, users are obliged to cross a street where vehicles cross fast, although a public traffic light is positioned.

5.3.1.4. Green Infrastructure and Biodiversity

Vegetation characteristics and distribution. Most of the corridor is covered by lands and grass. Such grass is not cultivated but left to ecosystemic purposes (bee keeping). The Panovec wood (beginning of the corridor) is characterised by beeches, lindens, oaks, pines, and acacia, but many other species could be found given its experimental nature in the past rulers of Gorizia/Nova Gorica.

Distribution of public green spaces. The area of the corridor is mostly green and characterised by an intense presence of green resources. The Koren and its banks, the Panovec and Kostanjevica Hills with their woods, the Rafut Villa and its park to be reopened and the ways back through Gorizia passing by the Castle and via della Cappella. All is green, but with no intermediate facilities at the moment.

Green roofs. There is no green roof applied in the area, although potentially many blocks could be provided of this technology.

Green infrastructure. Part of the path includes the Kostanjevica hill and the Rafut Villa park.



Figure 5. 99: Rose garden of the Kostanjevica Monastery

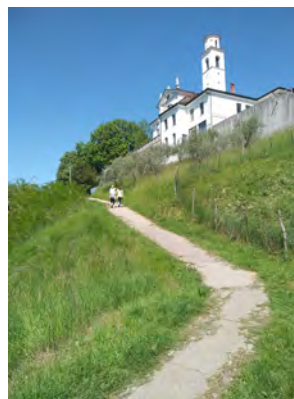


Figure 5. 100: Path towards Kostanjevica

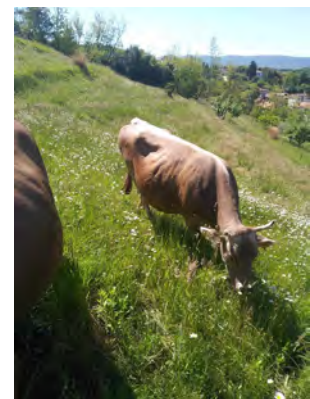


Figure 5. 101: Terraced agricultural and pastoral landscape of the Monastery



Figure 5. 102: Original design of the Rafut Park by Anton Lasciac



Figure 5. 103: the neomoresque villa called Rafut by A. Lasciac

Protected areas. The Panovec wood is part of the Natura 2000 network. Along the corridor we also encounter the Rafut Villa and its park, which are a national monument (former unique botanic garden of the Villa).

Infiltration area/ground permeability. Most of the area has a good infiltration rate, drained by the Koren stream. At the beginning of the corridor a retention basin was released several years ago, to prevent floods in the northern commercial area.

Green spaces management. The area of the corridor is not fully public, but characterised by a jeopardised ownership. However, most of the redevelopment path includes the existing public domain, including the national government within the Refut space.

Accessibility of urban green spaces by population. Almost the entire path of the corridor is accessible to the population, excluding at present the Rafut Villa and its park which are closed for safety reasons.

Biodiversity. No biodiversity mapping could be performed, but the area includes Natura2000 spots and could be particularly relevant for the renovation of the botanic Garden of the Rafut Villa, displayed in the previous pictures.

5.3.1.5. Local Masterplans

Land use planning. In the previous maps there are the main descriptions of the destination. Most of the lines of the corridor do not allow additional buildings apart from the lower part of the hill of Kostanjevica.

Local masterplans that comprise the Study area. Urban/Landscape design projects in the Study area. The Town Council of the Municipality of Nova Gorica adopted a decision in May 2009, with which it allocated a lot for the needs of constructing a campus of the University of Nova Gorica. A project for University Campus in 2010. The strategic destination is still in place and a project by Podrecca studio was made.



Figure 5. 104: Land Masterplan in the corridor area made by UNG in 2010 for the UNIVERSITY Campus

5.3.1.6. Urban/landscape design Projects.

Recently a bike path was designed through an open call and the winning project approved in March 2021. The bike lane is going to be released along the Koren.



Figure 5. 70: The Bike Lane track towards the border (on the left)



Figure 5. 105: The north bank of the Koren Before



Figure 5. 106: The North Bank of Koren after the construction of bike lane

Urban/Landscape design projects in neighbouring areas. The unique area that is under potential development is the commercial area at the beginning of the corridor, at the exit of the Koren stream from the Panovec wood.

5.3.2. Social description

The data to be collected at parish and neighbourhood level are almost the same collected at general, city level with a closer loop on the selected case study. The idea is to verify and assess if the urban profile is confirmed in the area or shows a better or worse performance in the selected neighbourhoods. Social data could be good in certain aspects, bad in others, offering a different scenario for the development of the NBS solutions as per URBINAT catalogue.

5.3.2.1. Demographic

Demographic description. No specific data about the demography of the area are specified. The composition is potentially similar to the profile of the city in general. Most of the buildings in the city are occupied and there is a huge request for residentiality in these former socialist blocks.

Presence of Vulnerable groups in the area. There is no evidence of this. The percentage is similar to the one of any other spot in the city.

Cultural/Ethnic diversity. There is no evidence of a higher percentage of cultural and religious diversity in the area. Probably it is the opposite, given the high interest of residentiality and consequent high real estate value.

Education/Literacy. No specific data are available. However in the area of the corridor there is also a student house (tertiary ed.) and the Monastery that keep a high level of education in the spot. There is probably a difference between the Italian and Slovenian sides.

Housing conditions. Houses are in average conditions, medium-high standards

Cultural rate. Referring to the corridor area, there is no evidence about the cultural rate. However, the corridor was chosen to provide natural and cultural well-being, insisting on some of the more important spots of the two cities. In addition, proposals for the Villa Rafut renovation include the creation of a cultural social centre promoting the circular economy principles in the built environment.

Religion. There is no description of the religious composition of the area. The corridor will though connect different religious/symbolic places as the Kostnjevica Monastery (Catholic), the Neomoresque Villa Rafut (Islam) and the Jewish Cemetery in Rožna Dolina.

Family description. Same profile of the city. Families of 3-4 average components.

Media representations. There are no specific channels for the area of the corridor, apart from the Monastery of Kostanjevica, the student house and the community group in the entire southern part of Nova Gorica. Same is for the side of Gorizia.

5.3.2.2. Safety and health

Health and well-being rate. The overall satisfaction of residents of the area is high. The area of the corridor includes numerous 1 family houses with gardens and green spaces in front of the stream. The area itself is considered central and well served.

Health services. The area of the corridor is 400 meters far from the local ambulatory and 5 minutes far by car from the regional hospital. In addition, the local GECT/EZTS has been working in the last years to formulate a cross border health system for the cross border residents, benefitting of the same services in the two cities (and 2 regional/provincial hospitals) <https://euro-go.eu/it/programmi-e-progetti/progetti-iti-salute-zdravstvo/>

Safety and criminality. The area on both sides of the border and within the corridor is not characterised by high criminality rates. Same figures of the two cities as whole.

Security. Good security level all over the corridor area.

Rights claims by populations of social housing neighbourhoods. No specific claims on both sides of the border.

Mechanisms available and used by citizens to access justice (both individually and collectively). The facebook page of the municipalities and direct email to mayors.

Existence of specific mechanisms and initiatives to recognize and promote access to rights and justice. No specific services available.

5.3.2.3. Participation

Political participation: (Eclipse Ch8 - this must be expressed in voting rates, namely the percentage of the voting population). No specific figures for the neighbourhoods of the corridor. Probably similar prospects as for the cities.

Trust in local public institutions. No specific data. It can be emphasised that the political cycle of Gorizia is stable (centre/right) with good trust percentages on the present administration. IN Nova Gorica the continuity is less evident, although the trust in the present mayor in the last voting's was net positive.

Social connections (Eclipse Ch8 -social support networks - family, friends, neighbours). A good social centre in the area is the Dijaški Dom, the dormitory for youngsters aged 15-25, at the beginning of the corridor area (<http://ddng.si/o-domu/>) . The presence of 2 schools on the Koren path is another important social building form. On the opposite side of the corridor, end of Koren, we find the Student House, Študentski Dom, hosting university students (<http://www.sz-zip.si/podrocja-delovanja/samski-domovi-in-bivalnice/st-dom-ng-e>)

Social inclusion rate. (Eclipse Ch8 -this should be expressed by addressing, if possible, the following data n. homeless, expenditure on care elderly, risk of poverty, buildings without a lift, severe material deprivation, school dropouts. The above dormitories are a positive asset for social inclusion. However, this problem is not perceived along the corridor area.

5.3.2.4. Public services

Mobility (buses, trains, cars, bikes, etc.). The area of the corridor is crossed by a local car street climbing Kostanjevica hill. The rest is made of house internal streets, pedestrian and bike paths. An ongoing plan is building a bike path parallel to the Koren stream, while another bike route is under design to reach the Kostanjevica Monastery.

Subjective well-being. No specific data available, but residents of the area rarely complain.

Public services available inside the Urban agglomerate. As said the area is characterised by 2 schools, 2 youngsters/students' dormitories, 1 monastery with local products sold, and sport facilities. At the margin of the corridor area there are also basic services such as a post office, bars and restaurants, a hotel/casino, and other sports facilities.

5.3.3. Economic description

The data to be collected at parish and neighbourhood level are almost the same ones collected at the city level. The purpose is to have data at a lower level, for assessing areas in the city. These data will be also useful for the study of the corridors, the contextualization of specific city areas in the wide city context.

5.3.3.1. Income and poverty

Ownership of durable assets (e.g. rate of owners of their residence, rate of renters, shared accommodation, free accommodation. Most of the houses and flats in the area are owned.

Current expenditures (electricity, gas, food, etc.). As per municipal average.

Housing affordability. No specific data available, even if the availability of housing in the corridor area, Slovenian side, is very low and the real estate high, meaning that residents may afford.

Houses without central heating. Most of the blocks have central heating, although renovation trends are for individual ones.

Prices (houses, rents, construction costs, etc.) (Beyond a description, some indicators provided by national census, by the main national/ regional statistical institutes or by third party studies can be useful. Some examples are: housing prices, renting-house prices, inflation rate, price level indices. Eklipse Ch10. Same as per the city as a whole. In Nova Gorica about 1500 sqm, Gorizia, border side, about 900 sqm for sale.

Tourism/Leisure/culture/sport expenditure. There is no data available on the parish level. Considering the low presence of tourism attractions (the Kostanjevica Monastery) it is expected to have a very little impact on the parish. The reopening of the Rafut Villa and the connection to the Castle of Gorizia and the Provincial Museums.

Trust of consumers. No specific data available

5.3.3.2. Employment

Competitiveness. In the parish there are some economic activities connected to the building sector mainly. It is though considered mainly a dormitory area, devoted to leisure and rest. However, the centre of the city, with commercials and other activities is in the very proximity of the area.

Activity and Employment rate. Eklipse Ch10. There are no specific figures for the parish level, but we may consider the average-high of the city, given this is a central and very competitive area in terms of real estate.

Industrial plants concentration rate in social housing districts. There are no industries along the corridor.

5.3.3.3. Innovation

Research and development. At the parish level there are some activities that may deal with innovation, as a mechatronic bureau. However, in Slovenia the registration of a company, especially an individual, can be done at the residential address, where no activities are actually performed.

5.3.3.4. Activity sectors

Agriculture production. IN the paris/corridor there are not intense agricultural activities, but family and small farming is performed. There are urban orchards/farming in the spot close to the Koren that are private and privately cultivated. At the extension of the corridor there is also the farming and pastureland of the monastery, which occupies almost 1 hectare. The monastery also produces products out of the rose garden, a famous and historic small spot inside the monastery.



Figure 5. 107: A community Garden in the Koren, dating back to the 50s'



Figure 5. 108: The terraces of Kostanjevica, today reduced in extension

Cultural and creative industries. Although in the parish level there is no specific evidence or excellences, there are some activities devoted to cultural activities or events organisation, beyond the presence of the educational institutions, as the 2 schools and the social sciences university. Beyond this, the specific area of the corridor does include part of the city centre where, for example, the XCenter is located. The XCenter was recently established by the municipality as a space for public interaction based on innovations and arts display. Here artistic installations, informal expositions are made, and the population is always invited. Closed to the corridor area there is also the Kulturni Dom, house of culture, where relevant events in cinema and theatre are constantly organised.

However, given the CultureCapital2025, all the corridor area will be invested of constant cultural events, merging nature and culture through art.

Tourism characterization. No statistical data are available. As said, tourism is partly performed in the area, with main spots in the Kostanjevica Monastery and the way towards Gorizia Castle. The reopening of Rafut Villa may partly improve the present figures. There are guest houses in the area, below the Kostanjevica Monastery and in the settlement of Pristava, as well as a little hotel close to the Sport Center (thus on the border of the corridor area. Before the Pandemics also the Dijaski Dom was used as a hostel, thus augmenting the number of available rooms for youngsters in the city during the weekends.

Stores and commercial activities. There are no relevant commercial activities in the corridor area. The parish has some small shops and markets, but the main commerce is performed in the inner city, where all services are located. We should mention the lower part of Delpinova Street, with a bakery, bar, wine shop. Unfortunately, the praxis is more and more to move by car towards the commercial centres, 2 in the city of Nova Gorica (Qlandia and Supernova) with big supermarkets in the outskirts of the city of Nova Gorica and Gorizia (Lidl, Famila, etc.). These trends are limiting the social interactions in all neighbourhoods, including the area of the corridors. New commercial concepts could be envisaged.

Café, bars and pubs. In the corridor area there are no bars and cafes, apart from the student house. Some are in the margins of the corridor (east and west) and walking towards Erjavceva street. The absence of a resting spot is maybe contributing to the use of the corridor simply for transit and not staying.

Restaurant and catering services. There are no restaurants in the corridor. There was one at its beginning, a new one was opened recently (Madonca) towards the Gorizia border, west, while 2 are located towards Panovec, east. Economic figures are, though pretty low.

5.3.3.5. Facilities

Cultural facilities. In the parish/neighbourhood the main cultural facilities are the attractor of the corridor, namely the Koren stream itself, where cultural spots should be created, the Kostnjevica Monastery, the Rafut Villa, the path towards the castle of Gorizia. In terms of existing activities, the offer is pretty low, being considered mainly as a natural, sport path at this moment (for hikers and bikers).

Kostanjevica Monastery	Frana Erjavca School, primary school The Rose Garden of the Monastery
The Rafut Villa in Pristava	Via della Cappella connecting Gorizia and Nova Gorica towards Kostanjevica
The Ravnikar plan and buildings	The Ruski Blocks

Educational facilities, kindergartens, schools, higher education facilities (public and private). In the parish are located 1 kindergarten, 1 elementary school, 1 second level school, 1 Faculty for applied social studies (fuds.si) and the dormitories for youngsters and students (from all universities in the area, mainly University of Nova Gorica).



Figure 5. 109: Frana Erjavca School, primary school



Figure 5. 110: Kozara School, for students with disabilities



Figure 5. 111: Dijaski/youngsters house on one side of the Koren, in the main area of the corridor



Figure 5. 112: The Faculty of social sciences at the beginning of the corridor area.

Recreational and leisure spaces, sports facilities (public and private). The entire corridor is considered as leisure space. From this empty space tracks towards Kostanjevica and Panovec wood start. Bike routes are under construction, and some are already in place and some sports facilities, such as open air gym tools, are provided. (Below the Panovec path and the Lower Kostanjevica bike route)



Figure 5. 113: The path towards Panovec Wood



Figure 5. 114: The pedestrian border entering Pristava looking towards Kostanjevica

5.4. Stage 2 - Local diagnostic report: methodologies

The complex situation of the Covid-19 has somehow made face to face meetings in the parish and the neighbourhood of the corridor. The initial plans were to start local activities in March 2020, by issuing information and calls for gathering in the area and plan the most suitable methodologies to be adopted. In this respect, information about the URBiNAT project was issued through the Facebook page of the municipality and through other social media, as well as through printed leaflets. The pandemic also affected the area in a form that somehow impeded even local actions, because the original idea was to involve the Slovene and the Italian side (with lower percentage of Italian representative given the focus on Slovene territory): the pandemic though impacted in a different form Italy and Slovenia, Gorizia, and Nova Gorica, mostly in different periods and with different contrasting measures. After the lockdown of last year, ending in May 2020 and restarting in October until this May, almost anything in public was possible, but restrictions continued in Nova Gorica until late June. However, in January, issued in March, we prepared additional information to the citizens asking about their willingness to participate in the activities, also investigating with local institutions and schools if some kind of participatory activity was possible. So far, no agreements were made, apart from the imagined methodologies that can be performed with the very scarce available time (September and October 2021) to submit the report. It is certain though that the methodologies could be performed also after the reporting period, for the sake of the plan for the corridor. Below a display of the informative material issued recently, to collect participation wills by parties.



Figure 5.115: The info leaflet to collect participation



Figure 5.116 images from the literature to inspire the corridor design



Figure 5.117: images from the literature on Tiny forestation inspiring practices, as the tiny forest

5.4.1 The first stage of the Local Diagnostic - lessons learnt

In Stage 1 of the Local Diagnostic, the Nova Gorica assembled and organized an exhaustive data set that could inspire the design and creation of the corridor. Such data were integrated with the ones of the city of Gorizia given the outstanding effort of the two cities to merge strategies and plans, as well as services, as demonstrated by the recent award of Cultural Capital 2025. During the local diagnostics, referring to existing plans and funds, activities in the corridor area were also performed, as the design and initial construction of a bike path along the Koren stream, North Bank,

where the task force in Nova Gorica could have a little say (only at the end of the process with some indications), while other plans entered the scene due to national planning exigences (ie. the transformation of the corridor area into the national football team camp, which was never implemented). The bike path is planned to be completed by the end October 2021, including gravel paving, lighting, bench installation and water fountains.

At present, the local diagnostics in the stages 1 has permitted to recognise the following needs:

- Some important data, especially economic, in the parish are not easily available. This would permit us to understand if there is willing to participate in the process of corridor co-design and in which conditions. However, it is well-known in the city that the existing tenants of the corridor area are elders that got a flat or house in the initial stages of Nova Gorica (thus part of the “original local community”, or younger families with relatively good life standard, considering that purchasing or renting a house in this area is expensive for both cities real estate markets.
- there are not diffused community activities in the city and in the area. The practice is to rely on the local government and manage eventually small plots of land. The parish and the area of the corridor are needing some more services that could enhance its attractiveness, as small commerces or, more probably, meeting areas as a bar or a community centre. In this respect there are some empty built spots (as the former Bocerija towards Gorizia, behind the *Madonca* restaurant), existing facilities, as the Dijaski Dom, the Kostanjevica monastery, the Rafut Villa to be regenerated, but there are also extensive green spaces where formal/informal buildings rooms can be generated.
- There is a possibility to work on the educational component of the corridor, given the presence of important educational resources such as schools, universities, and related facilities, as well as the relevant cultural attractions. Considering the initial idea of the corridor along the Koren to revitalize a green area reconnecting cultural assets, the local diagnostics stage one confirmed this possibility. An additional confirmation was offered by the Cultural Capital 2025 that came along the process.
- Greening and re-greening is not a priority, given the extensive green space in the city and the proximity of the leisure park of Panovec and Rafut around the corridor area.
- Citizens may be interested in extending this area/corridor as a leisure and sport park, paying attention to the ecosystem that has been existing in the area for its long term “underuse” condition. The area is in fact left without development actions for several decades, as historic pictures show, and the city developed towards completely different axes in the past.
- There is a constant “migration” of people from the two sides of the border, with an interest in getting the desired services regardless of nationalities. Sport is mostly performed in Nova Gorica, while strolling in historic environments is mostly performed in Gorizia.

5.4.2 Design of the research plan for the second stage of the follower cities' local diagnostics

Before starting with the implementation of the second stage of the local diagnostics a mental map was produced by the task force, determining the possible connections of the actions to be put in place.

On one side (below in the left ramification) the communication channels, getting advantage of both the MONG and UNG ones, namely social media, websites, emailing to specific segments, etc. On the other hand, the potential tools to be used were investigated, as online surveys, direct questionnaires, as well as which of the as allowed and to which extent. The centre of the Mental map was dedicated to the definition of the corridor, namely listing the potential spots or assets that could have had an additional value to the final project. IMportant focus was given to the inclusion of the Rafut Villa and its park, on the Pristava settlement and the way towards Gorizia Castle, the castle of Gorizia and the way back to Nova Gorica through the Via della Cappella and the “informal crossing of the border”.

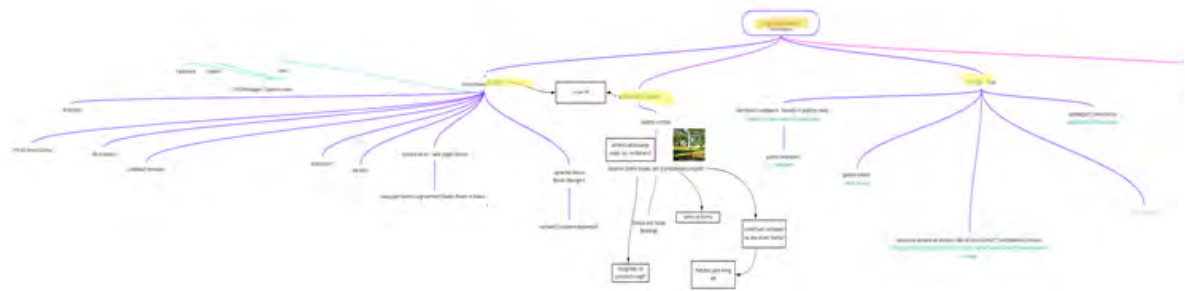


Figure 5. 118: Mental map for the second stage of the local diagnostics - communication, roles, options
Main social media adopted were:

- the facebook pages of UNG, MONG and personal of staff of the task force;
- the twitter accounts of the same institutions
- The Websites of both UNG and MONG
- printouts with the main communication about the upcoming commitments

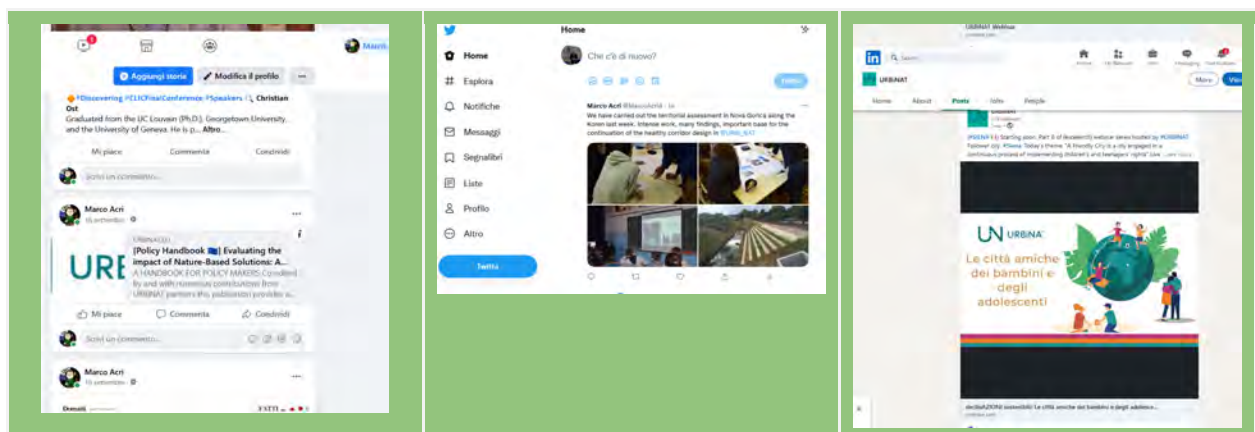


Figure 5. 119: The uses of the social media to communicate URBiNAT in the area, Facebook, Twitter, linkedin

Other communication channels or tools identified were:

- Online surveys, to be forwarded through emailing, mobile messaging (Whatsapp, sms, Viber, etc) or posted in the main social media indicated above;
- traditional mailing, addressing the social block, private residences and villa, as well as offices and businesses;
- Use of the Krajevna Skupnost, Local Community, communication strategy of the city of Nova Gorica, <https://www.novagorica-ks.si/> , Their communication tools are connected to a web and a facebook page and is meant to share information from the city to the citizens and viceversa.
- use of the panels out of the municipality and the public library to share through posters the contents and achievements of the project.

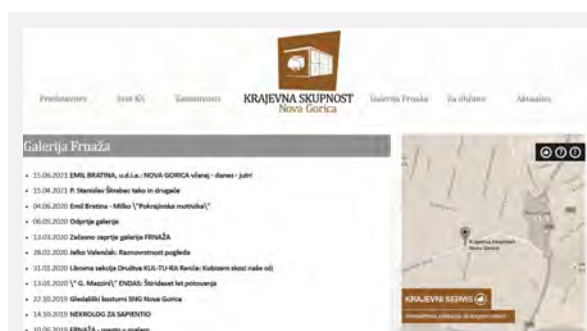


Figure 5. 120: The webpage of the Krajeva Skupnost community group.



Figure 5. 121: The panels to be used to communicate the results of the URBiNAT project

This mental map was necessary to understand the priorities during and after the LD Second stage, figuring out the main directions to insist on.

Engaging citizens and stakeholders in participatory activities to build on their visions and perceptions for a co-diagnostic is thus fundamental, even in the perspective of a potential conservation effort in the green area. Mostly, the cultural evidence is an absolute asset here, including the border component, that became a tool for gathering and joining instead of being the “divisional” element of the past. So, the local diagnostics will be focused on the understanding about the perception of the border and of the cultural assets along the area, with important references also to the past. At this very moment, beyond our ideas about the corridor design, we do not know yet how it is perceived by the citizens and how they would like to transform (or maintain it).

The mental map was lately affected by the pandemics, given that the certainty about the implementation of any activity, including is consequent communication, could not be performed from March 2020 to September 2021, excluding few moments during the summer 2020 and summer 2021 that were however characterised by an absence of active citizens in the perspective of the corridor creation (i.e., children and parents, professionals, teachers and professors, etc.)

Selection of the methodologies for the 2nd Stage

Considering the results of the local diagnostics Stage 1 merging the two cities, the existing resources, the future developments of the area of the corridor, as well as the specificities of the site and the main initial goals of URBiNAT’s actions there (reconnecting underused parts of the city),

some methodologies were considered as a priority. Such priority became necessary for the COVID-19 Pandemics that heavily influenced the capacities of the task force to plan local actions on the site, with stakeholders and communities in a participatory or group form. In fact, the on-site actions could be performed only recently, between September and October 2021, when the situation seemed more opportune, even if this did not release the task force of problems (for example a photovoice session was suspended the same day due to the entrance to quarantine of 2 classes of the primary school).

The selected methodologies have been:

- **Photovoice**, especially for the opportunity to work intensively on the history of the site, of Nova Gorica and its relationship with Gorizia. This method seemed essential to grasp the memories of the site and reconstruct the original spirit of the city of Nova Gorica, and the Koren stream itself, of something made by people with their hands.
- **Behavioural Mapping**, especially to understand why the area of the Koren and all its cultural assets are not experienced at best by citizens. The intention of the behavioural mapping is to investigate the time spent in the area and define possible solutions to keep users more on the site to enjoy its nature and cultural qualities.
- **Territorial mapping**, because nothing similar has been made in the past, regardless of its consolidated importance in planning. Mostly, the territorial mapping permits to highlight through the lens of different operators, the potentials in the area, the underused spaces, the details to be improved or introduced.
- **Neighbourhood survey**, through a hybrid form of on-site interviews and online questionnaires, to understand the real satisfaction of citizens about their neighbourhood, in terms of safety but mostly opportunities of use.
- **Face-to-face interviews**, especially focusing on their activities and businesses connected to NBS and how they would like to implement them in the corridor area. This method is important in Nova Gorica because a relevant problem of the two cities is unemployment and a connected abuse of unhealthy attitudes. Demonstrating the importance of NBS and related business could certainly offer chances to the residents and future employment scenarios.

Other 3 methodologies have been considered not essential immediately for the area, at least as assessment methods, in specific:

- **Walkthrough**, due to the pandemics and the need to organise activities that could be not put in place regularly. The intention is clearly to work much on situational learning, thus mixing information gathering and planning. As said, a specific interest would be gathering information from elders, who may tell a long story on the creation of the Koren and in general on the development of Nova Gorica. Nova Gorica was born in 1946, this means that there are still many persons that could talk about its development, as well as being interested in participating in experiencing walks in the neighbourhood.
- **Cultural mapping**, but through a specific methodology called perception mapping, which is based on the collection of information from people according to their perception in the neighbourhoods using the 5 senses. Also, this method was not considered important initially, because it is considered more a planning tool.

- **Soil and water analysis** in the Koren area was implemented recently and carried out by local institutions, including the University of Nova Gorica. The assessment evidenced a good soil and water quality, thus a relatively healthy location for use by humans.

Preliminary activities to implement the methods

The available geographical and administrative data were analysed in preparation for the field analysis of the corridor area's participatory co-diagnostic phase. The University of Nova Gorica and the City of Nova Gorica defined the study zones within the corridor and mapped stakeholders to be potentially involved in the process.

Zones definition:

As we have often stressed on, the Koren stream in an artificial canal is the backbone of the corridor's revitalisation area, connecting the two cities of Nova Gorica and Gorizia. Based on the protected urban design of the postwar socialist city and its connection to the Koren stream and Panovec, the city main urban forest, on the other side, the identified zones are:

- Zone 1: **City centre**; the zone axis leads directly from the city centre towards the "Ruski bloki" and the Koren stream;
- Zone 2: **"Ruski bloki"** (i.e. Russian Blocks) and the Schools area; the zone axis leads directly from the city centre towards the Koren stream;
- Zone 3: **Residential area on the West**; developed parallel to the Koren stream;
- Zone 4: from **Kostanjevica monastery** and the northern edge of Panovec forest towards the Koren Stream; the zone is the central green and recreational area of the city;
- Zone 5: **"Grčna " Residential area**; developed parallel to the Koren stream.

The definition of the area passed through a joint collaborative task force assessment and drawing, as shown in the below map

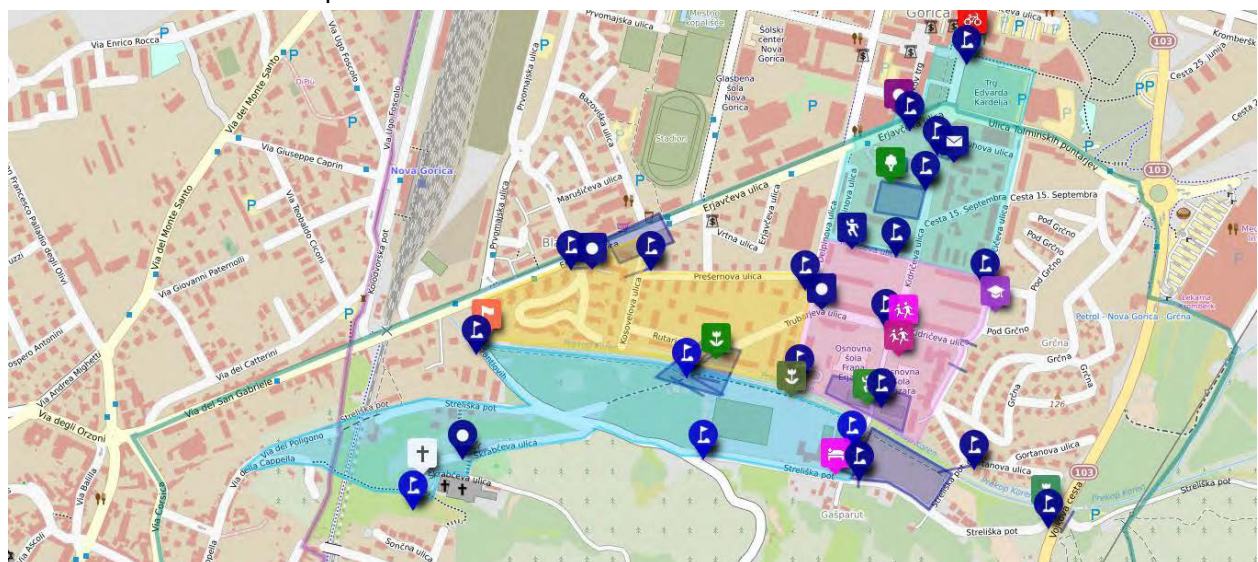


Figure 5. 122: Original map for the second stage of local diagnostics defining the area and the main survey spots

Which became the map below, finally taken as reference for most of the Second Stage activities.

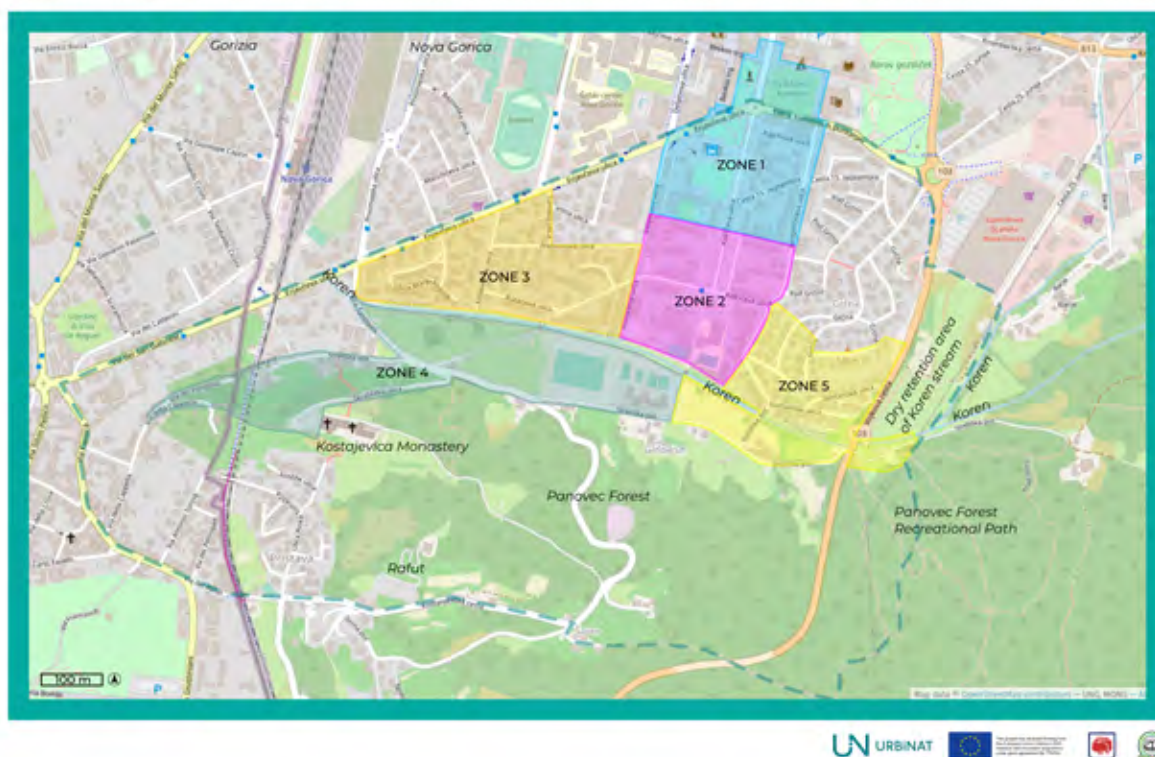


Figure 5. 123: official map used to carry out the surveys, dividing the 5+1 areas.

Following the release of epidemiological measures, it was necessary to quickly adapt and prepare methodologies that could realistically test the areas' use. Therefore, after stakeholders mapping and selecting study zones, the following participatory methodologies were selected:

Behavioural Mapping, which included

- merged *People moving count* and *Gender & Age tally* by Jan Gehl Institute;
- *Stationary activities Mapping* by Jan Gehl Institute; to which we have added more detailed descriptions of the activities that people in space do, whether they are alone or in a group, mapping as well social interactions.

Territorial Mapping, which mainly focused on

- mapping informal pedestrian paths and barriers obstructing walking, following CIBIO's methodology of *Mapping existing pedestrian networks*;
- vacant, deprived, or deficient areas or underused areas with potential for new uses, following CIBIO's methodology of *Identifying vacant lots for the Healthy Corridor and NBS*.

Photovoice, following the methodology indicated by the leading partner, CES, the work consisted in

- including children of 9th-grade primary school (13-14 years old);
- including youngsters in secondary school dormitory (from 15-19 years) and their educators;

- including elderly from elder housing (was not yet possible but will be implemented soon, potentially in November).

Neighbourhood Survey, following OWL's methodology is in preparation.

Considering the strict calendar imposed by the pandemics, a rush schedule was implemented, with some unpredictable inconveniences (as students quarantine one days, impeding the photovoice session). The team included the local task force, an appointed expert for the coordination of activities and mapping, and a relevant number of students shortly employed by MONG and UNG.

The participatory local co-diagnostic phase took place from 5th - 23rd October 2021.

Date	Topic	No. of Participants
September 2021	Organization of the schedule in the task force and decision to appoint external expert for coordination of activities	4
5 October 2021	selection of the external expert	4+3
Monday, 18 th October 2021 13:00 – 14:00	Introductory lecture to the URBiNAT project and participatory Methodologies. Municipality of Nova Gorica (MONG + UNG)	11 + 4 (MONG+UNG)
Tuesday, 19 th October 2021	Behavioural mapping – two methodologies at the same time 7:30- 8:30; 10:30-11:30; 14:00-15:00, 16:00-17:00	9 + 6 (MONG + UNG)
Wednesday, 20 th October 2021	Territorial mapping – two methodologies at the same time 8:00 – 13:00	6 + 4 (MONG + UNG)
Thursday, 21 st October 2021, 8:50 – 10:35	Photovoice – 1 class of primary school 9 th graders (13-14 years) Invited architect and urbanist Mr Tomaž Vuga.	6 (including teacher, UNG, MONG, Mr Vuga) + 25 pupils
Thursday, 21 st October 2021, 17:00-18:00	Photovoice – youngster's dormitory (15-19 years), 60 minutes.	15 (including MONG, UNG, educators and pupils)
Friday, 22 nd October 2021	Photovoice – 2 classes of primary school 9 th graders (13-14 years). Film about the Koren (Goriški sprehodi).	Cancelled to quarantine.

Saturday, 23 rd October 2021	Behavioural mapping – two methodologies at the same time 7:30- 8:30; 10:30-11:30; 14:00-15:00, 16:00-17:00	4 + 5(MONG, UNG)
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Table 5.89: The participatory local co-diagnostic phase took place from 5th - 23rd October 2021

Stakeholder’s mapping

The stakeholders mapping merged three methodologies to efficiently classify the stakeholders and their selection to participate in the process.

The stakeholders were to be entered according to the importance from the local (centre) to the international level (outer edge) while being classified according to their main activity (the flower of sustainable heritage development) and their placemaking potential (placemaking diagram).

For the participatory mapping, the online canvas tool Miro was used.

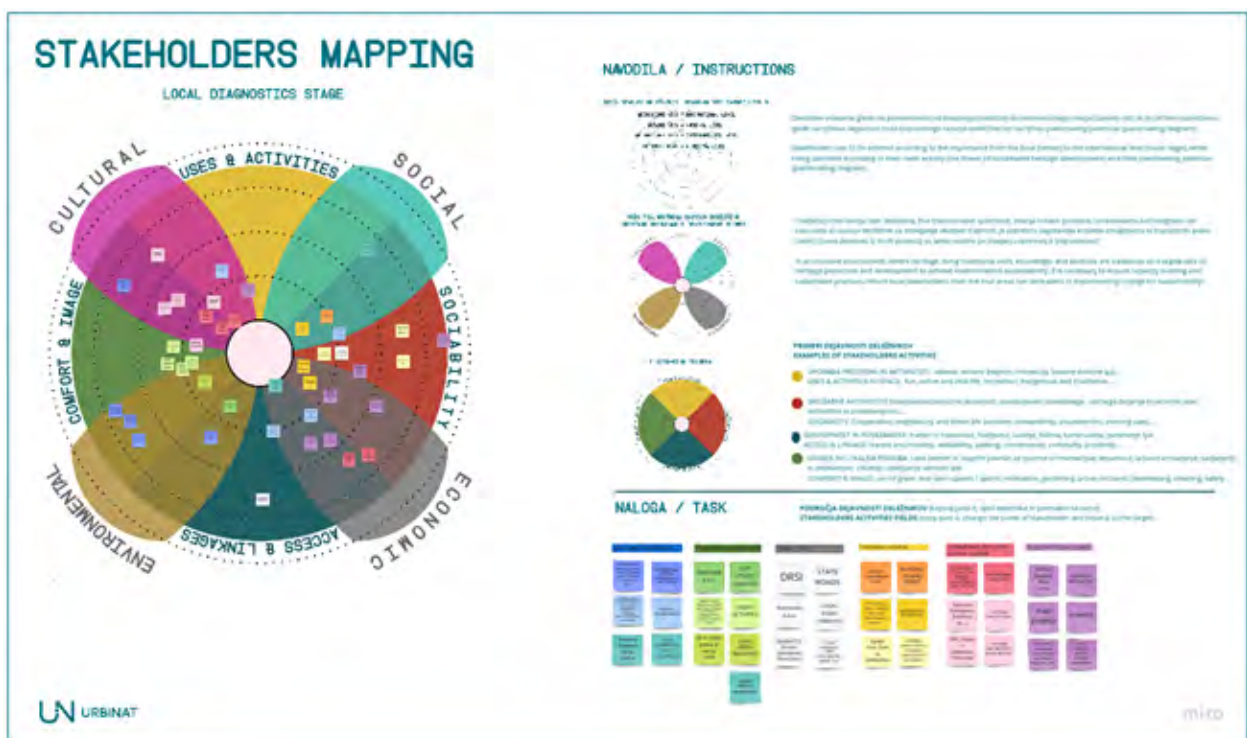


Figure 5. 124: stakeholder mapping plan implemented in the task force

The selected methodologies overlayed for stakeholders mapping were:

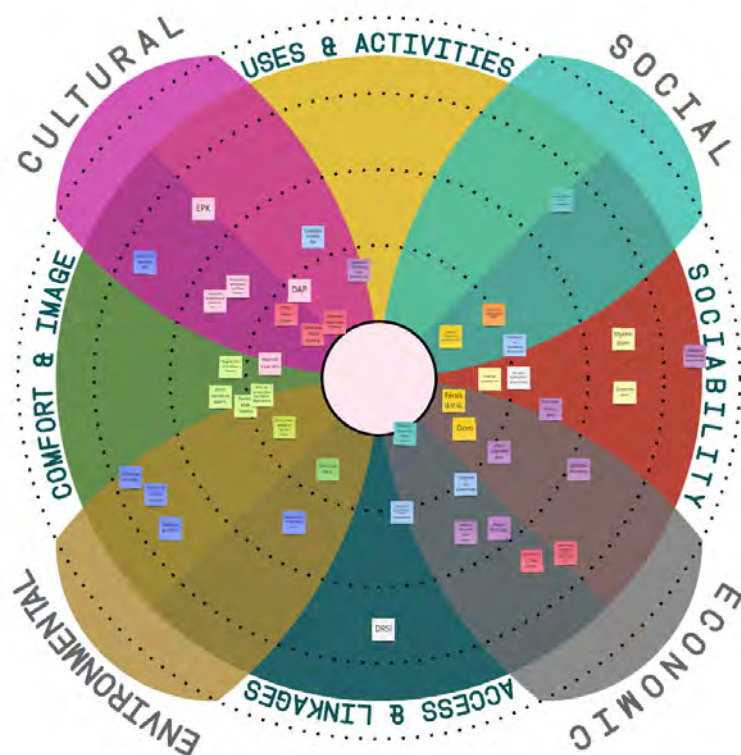


Figure 5. 125: Zoom of the stakeholder mapping



Figure 5. 126: *The Stakeholders target levels*⁷including:

- municipal level;
- intermunicipal level, due to the local administrative fragmentation and need for neighbouring municipalities cooperation and coordination;
- national level, due to direct state administration and governance in some fields;
- international level, for cross border cooperation (Nova Gorica, Gorizia; GoBorderless).

⁷ Inspired by *Stakeholders Ecosystem Map*, by URBACT [<https://urbact.eu/stakeholders-ecosystem-map>], September 2021 and *People and Connections map* (DIY TOOLKIT: Practical tools to trigger & support social innovation) by [<https://diytoolkit.org/>], September 2021.

ROŽA TRAJNOSTNEGA RAZVOJA DEDIŠČINE
HERITAGE SUSTAINABLE DEVELOPMENT FLOWER

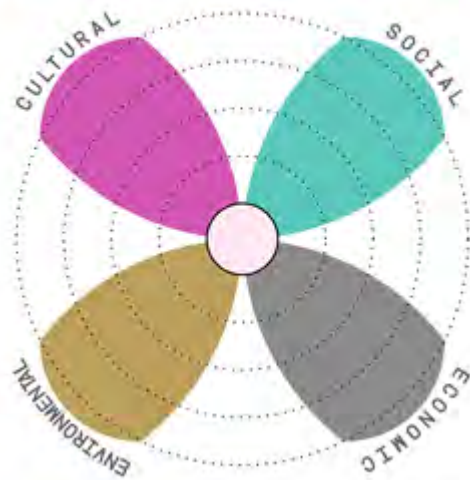


Figure 5. 127: *The Heritage sustainable development flower*⁸ was selected because, in an inclusive environment, heritage, traditional living skills, knowledge, and land use should be treated as an integral part of the development to achieve environmental sustainability. Therefore, overlaying which local stakeholders from the four areas (cultural, social, environmental, and economic) can be leaders in implementing change for sustainable heritage transition of the new post-war city of Nova Gorica and the old historic city of Gorizia.

PLACEMAKING DIAGRAM

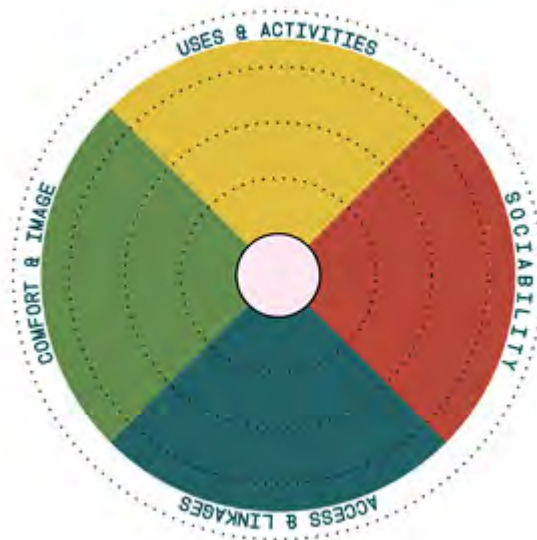


Figure 5. 128: The *placemaking key attributes diagram*⁹[3] by Project for Public spaces, was selected to classify the stakeholders' main activities for their placemaking potential based on:

- USES & ACTIVITIES IN SPACE (fun, active and vital life, recreation, traditions);

⁸ Cultural Heritage Counts for Europe, 2015

⁹ What makes a great place? Project for Public spaces [<https://www.pps.org/>], September, 2021.

- ACCESS & LINKAGE (transit and mobility, walkability, parking, convenience, continuity, proximity,...);
- SOCIABILITY (Cooperative, neighbourly and street life boosters, stewardship, volunteerism, evening uses,...);
- COMFORT & IMAGE (use of green and open spaces/sports, recreation, gardening, urban orchards, beekeeping, cleaning, safety,...).

5.4.2.1. Behavioural mapping

Behavioural mapping of people spatial behaviours adopted and merged Jan Gehl's Institute's methodologies of *People moving count* and *Gender and Age tally* to understand where and how people move in space and which gender and aged people are represented. The methodology counting applied in all zones in one weekday and the weekend day in four different time slots (7:30 - 8:30; 10:30 - 11:30; 14:00 - 15:00; 16:00-17:00), where participants counted for 10 minutes on the interested location spots. Every zone had five location spots; the participants were given paper maps with instructions to draw/note on them.

The document below is the reference for the behavioural mapping methodology. Similar maps were prepared for each zone in numbers to cover the different survey moments, namely ½ days of the week, 4 slots of time, and 1 day of the weekend, 4 slots of time, as explained above.

Operators used either vertical sticks or crosses to number the persons crossing, sometimes also using roman numbering in case of huge numbers, as X, V, XVII, etc. The right column was meant to gather additional descriptions of specific data, if necessary.

VEDENJE LJUDI V PROSTORU - premiki

OPREDELITEV:
 - Skupaj sodelavci in študenti na terenu.
 - Skupaj sodelavci in študenti na terenu.
 - Skupaj sodelavci in študenti na terenu.
 - Skupaj sodelavci in študenti na terenu.

OPREDELITEV:
 - Skupaj sodelavci in študenti na terenu.
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OPREDELITEV:
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OPREDELITEV:
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 - Skupaj sodelavci in študenti na terenu.
 - Skupaj sodelavci in študenti na terenu.



Ime mesta: VEDENJE LJUDI V PROSTORU		CONA 2- RUSKI BLOKI IN SOLE (ul. Križevci ul. do Koraj)												Datum:		Vreme:						
Opisni navedi: Jan Gehl (Institute of Urban Studies and Design)		Imena kartografov:												Časovni obdobje:		Temperatura (dnevni):						
Št. izkajne (glej karte)	LOKACIJA	LOKACIJA 1				LOKACIJA 2				LOKACIJA 3				LOKACIJA 4				LOKACIJA 5				Zapiski
		0-14	15-24	25-44	45+	0-14	15-24	25-44	45+	0-14	15-24	25-44	45+	0-14	15-24	25-44	45+	0-14	15-24	25-44	45+	
Kategorija gibanja	Stari																					
	M																					
Hiti	Stari																					
	M																					
Soi	Stari																					
	M																					
S prodaji/obisk	Stari																					
	M																					
S prodaji/strani	Stari																					
	M																					
Kolesarji	Stari																					
	M																					
Razni, manj običajni	Stari																					
	M																					
Drugo	Stari																					
	M																					

Figure 5. 129. The Behavioural mapping reference map.

The second methodology was *Stationary activities mapping* (Jan Gehl's Institute's), applied in all zones in one weekday and the weekend day in four different time slots (7:30 - 8:30; 10:30 - 11:30; 14:00 - 15:00; 16:00-17:00), where participants marked peoples spatial use of the selected area within the zone. Following the basic methodology we have asked for more detailed descriptions of the activities that people in the space do, whether they are alone or in a group, therefore mapping as well social interactions. Every zone had one location, which was observed for a whole hour. The participants were given paper maps with instructions to draw/note on them.

This part of the mapping document is meant to give the main information to the observer/operator to correctly collect data. It gives examples of icons to be used in case of typical happenings, giving though flexibility to the operator for additional/different symbols to use.



Figure 5.130: Behavioural mapping description section.



Figure 5.131: Behavioural mapping stationary area description

The retro section of the survey paper (A3 to be folded into A4) is the section to collect data. The operator in most cases decided to assign a number to each happening and describe it fully in the right column. Examples are provided below.

METODA VEŠEJNEGA LOKALNEGA VARNOSTNEGA		MREŽA 3. STALNOSTI (KOPNINA IN VODNIKI)		DAN: 23.10.2014		VREME: 16:00	
ZADOLŽENOSTI: JAVNA AGENCIJA ZA VARNOSTNO INŠPIRACIJO		MREŽA 3. STALNOSTI (KOPNINA IN VODNIKI)		DAN: 23.10.2014		VREME: 16:00	
MREŽA 3. STALNOSTI (KOPNINA IN VODNIKI)		MREŽA 3. STALNOSTI (KOPNINA IN VODNIKI)		DAN: 23.10.2014		VREME: 16:00	
MREŽA 3. STALNOSTI (KOPNINA IN VODNIKI)		MREŽA 3. STALNOSTI (KOPNINA IN VODNIKI)		DAN: 23.10.2014		VREME: 16:00	

Figure 5. 132: Data gathered in the area 1 in one hour slots in different locations. (People moving count and Gender & age tally)

METODA VEŠEJNEGA LOKALNEGA VARNOSTNEGA		MREŽA 3. STALNOSTI (KOPNINA IN VODNIKI)		DAN: 23.10.2014		VREME: 16:00	
ZADOLŽENOSTI: JAVNA AGENCIJA ZA VARNOSTNO INŠPIRACIJO		MREŽA 3. STALNOSTI (KOPNINA IN VODNIKI)		DAN: 23.10.2014		VREME: 16:00	
MREŽA 3. STALNOSTI (KOPNINA IN VODNIKI)		MREŽA 3. STALNOSTI (KOPNINA IN VODNIKI)		DAN: 23.10.2014		VREME: 16:00	
MREŽA 3. STALNOSTI (KOPNINA IN VODNIKI)		MREŽA 3. STALNOSTI (KOPNINA IN VODNIKI)		DAN: 23.10.2014		VREME: 16:00	

Figure 5. 133: Data gathered in area 5 in one hour slots in different locations. (People moving count and Gender & age tally)



Figure 5. 134: Stationary assessment in the area 2 in the late morning



Figure 5. 135: Stationary assessment results in area 3 in the late morning

An additional analysis will be implemented in the coming future for an additional zone/area, the n. 6, that is insisting on the border of the two cities and aiming to valorise the connection towards the historic city of Gorizia. Zone 6 is shown in the maps below, where also some pictures are displayed.

VEDENJE LJUDI V PROSTORU - premiki

NAVODILA
Metodi sledja premikanja ljudi (People moving count) in kjerje soore ter starostnega obdobja (Gender and age tally) sta metodi, povezani po metodah. Jara črta, ki opredeljuje območje 2020 URBANAT območij za sestavo analize kartiranja vedenja ljudi v prostoru.

Na karti so dve je označeni pet lokacij, ki jih med študijem opazujemo po določeni rutini, nato pa se premikamo k naslednji lokaciji v vasi: cone

Na karti je za posamezno lokacijo označeno tudi vaje točkilo in razpisano območje. V razpisano območje smo prešli, ko smo se preselili k drugi lokaciji. Če smo prišli, to pomeni samo ljudi, ki so navadno črto prečkajo in ne tiste, ki se premikajo vzdolž nje črte.



V tabelo za izkazanje podatkov, ki zajemajo točke vs črte, vnesemo podatke po analizi na letnem nivoju. Če robove je nekaj posredov za zagotavljanje linkov zaobkroženih nepravilnosti in jih ljudi neodvisno merimo.



Metoda: VEDENJE LJUDI V PROSTORU		CONA 6: PRIETAJA IN VIA DELLA CAPPELLA		DATUM:		VSEME:	
Ogledni navedi: Jan-Gra (dnevi premera) ali v drugi splošni in dnevno (dnevni)		Mena kategorizator:		Časovni interval:		Temperaturna interval:	
Za izkazje (ime)	LOKACIJA 1	LOKACIJA 2	LOKACIJA 3	LOKACIJA 4	LOKACIJA 5	Zbiranje	
						Ura	Min
Kategorija	1	2	3	4	5		
	6	7	8	9	10		
Vrsta	1	2	3	4	5		
	6	7	8	9	10		
Starostna skupina	1	2	3	4	5		
	6	7	8	9	10		
Kategorija	1	2	3	4	5		
	6	7	8	9	10		
Vrsta	1	2	3	4	5		
	6	7	8	9	10		
Drugo	1	2	3	4	5		
	6	7	8	9	10		

1. in 2. lokacija sta na sliki. Navedi ali v kateri drugi državi zbirate podatke.

Figure 5. 136: Additional zone/area in the Italian side, for future mapping of behaviours



Figure 5. 137: Via della Cappella towards Kostanjevica, in the Italian side

METODA: VEDENJE LJUDI V PROSTORU | CONA 6: PRIETAJA IN VIA DELLA CAPPELLA | DATUM: | VSEME: |

ZABRANJEVANJE | IMENA MATRICE/STROJ | ČAS: | TEMPERATURA: |

OPAZOVANA AKTIVNOSTI: | (Prejeto: 1. Jan-Gra (dnevi premera) ali v drugi splošni in dnevno (dnevni))

URBANAT

Figure 5. 138: Map for the new zone 6 for stationary behaviours



Figure 5. 139: Via della Cappella in the Italian side looking down towards Gorizia centre



Figure 5. 140: The way down in via della Cappella towards the koren area from Gorizia



Figure 5. 141: A look up towards the original via della Cappella and its cultural meaning (as a Calvary)

Results of the Behavioural Mapping

The work on the behavioural mapping was important, although carried out intensively in one week that could be not fully representative of the site considering the ongoing works for the bike lane construction (It should be stated though that our experience of the site witness that the observed trend is very similar to the one observed in the past before the bike lane).

The survey showed that:

- citizens are mostly passing by the area of the corridor, without stopping by for long periods. Although very green and healthy, even wild, no-one is staying for any purpose, apart from a family doing barbecue on Saturday within their vegetable garden. A possible comment in this respect is the absence of resting areas, where people could stop for longer moments or practice different individual or social activities.
- People are using the corridor area mostly for leisure purposes, to do light sports, as walks, light tracking, taking pets out, etc.
- There is a clear absence of youngsters in the area, who do not perform any kind of activity. In the observation period almost, no youngsters were assessed along the Koren, if not to pass by with their bike. Mostly elders were registered, even on the afternoon hours (considering the mornings are off for children for education reasons).
- There are numerous informal paths, especially in the Zone of the Kostanjevica monastery towards the border with Italy.
- The preferred spots of the corridor area seem to be 3, namely the Kostanjevica belvedere, the Bridge in the cross of Rutarjeva cesta and Trubarjeva cesta and its axe towards Kostanjevica (which is also visible in the historic pictures of the city) and the entrance to the leisure park of Panovec, that is gathering people from both Nova Gorica and Gorizia, especially in late afternoons.

5.4.2.2. Photovoice A

Methodology, in the discussion, foresees the cooperation of young and adults in telling stories associated with the specific area and the discussion topic. Educational facilities in the corridor area (schools and kindergartens), youngsters' dormitory, and elderly residential housing represent an essential participants pool and focus group for the methodology implementation. These groups are seldom included in the development process of the city.

Methodology foresees small groups of 6-8 people to discuss the topic and, in consensus, classify their images into the diamond diagram (from most to least relevant for a pilot project on Koren), for which A1 posters were prepared.

In Nova Gorica, the Photovoice was tested, so far, with the one class of 9th-grade primary school pupils (13-14 years old), during the class of geography; two classes, unfortunately, were quarantined. The pupils were grouped into three groups, each group having a moderator leading and noting the discussion about the images that students brought. Altogether about 25 pupils participated. As the primary school is located on the northern bank of the Koren stream, the photovoice workshop gave an important insight into how everyday users see the area. The session was closed by a presentation by Arch. Vuga of the history of Nova Gorica and the entire narrative behind it, aiming at inspiring pupils about the Koren revitalisation and potentially boost their commitment.

The day after the task force was supposed to reproduce the experience with other 2 classes, but we were informed about their quarantine in the morning, which obliged us to erase the workshop that same day. This session was prepared similarly to the one done the day before, but using two inspirational videos on the Koren <https://www.youtube.com/watch?v=8tDniY9Tu6M> and <https://www.youtube.com/watch?v=CgTlz3wJi8Q>, to be launched at the beginning of the meeting

The second Photovoice workshop involved residents of the youngster's dormitory (15-19 years), who are primarily local secondary school pupils but coming from distanced rural areas or different regions. Twelve pupils and two educators were included in the discussion, highlighting the spatial uses, issues, and wishes. As the dormitory is located on the southern bank of the Koren stream, the photovoice workshop gave an important insight into how users see the area.

The third Photovoice workshop intention is to involve elderly from Elderly residence, but this so far was not possible due to the possible health impacts. It will be carried out in a later stage, using it also as a planning moment.

The Primary school sessions

PHOTOVOICE

Ime skupine:

1. DIAMANTNI DIAGRAM RAZVRSTITVE
 Fotografije iz skupinskega pogovora razvrstite od najpomembnejše do najmanj pomembne za URBINAT projekt ob Kormu.

		NAJPOMBNEJŠE		
		NAJMANJ POMBENO		

2. POGOVOR O VAŠIH FOTOGRAFIJAH

V SKUPINI SE O SVOJI FOTOGRAFIJI POGOVARJATE O SPODNJIH TEMAH IN VAŠE ODGOVORE ZABELEŽITE V TABELI DESNO

VŠEČ MI JE ...	
RADŠA POČNEM ...	
SPREMENIL/A BI ...	

UN URBINAT

Figure 5. 142: Poster used for the photovoice sessions. Pupils took their own pictures and commented



Figure 5. 143: The task force explaining the exercise and the purpose to the pupils



Figure 5. 144: One group of primary students doing photovoice



Figure 5. 145: Another group of primary students doing photovoice



Figure 5. 146: The third group of primary students doing photovoice



Figure 5. 147: Presentation of the early history of Nova Gorica by Arch. Vuga



Figure 5. 148: The results of posters displayed for pupils and teachers.

Results of the Photovoice sessions at Primary School

The primary school pupils mostly noted the preservation of the natural features of the Koren. They enjoy the natural habitat for ducks, fishes, and wild, uncultivated vegetation around it. Their main wish is for more social gathering and sitting spaces, giving them privacy and shade. They would like to have more access to the stream, steppingstones for crossing, slightly higher and constant water levels, more pedestrian and naturalised bridges, and educational boards about nature. They also like the afternoon openness of the school sports ground (which was confirmed during the stationary activities mapping). They do not like the bad smell of Koren when there are high or low waters, rats, nettles, and high grasses. The pupils also do not like the vegetable gardens along the area of the Koren and suggest the municipality arrange them more uniformly.

The Dijaški Dom (Youngsters House) session

Dijaški Dom is located in the East part of the corridor, south of the Koren, in a very central spot of the focus area. This students/youngsters house is very important in the future of the project because it can be an attractive spot for the city and an enlarged community (i.e., before the COVID-

19 it was also used as a city hostel during the week-ends). Moreover, the number of youngsters hosted in the Dom may have a relevant impact in revitalising the Koren, if appropriate ideas are provided for them in their leisure and studying time.

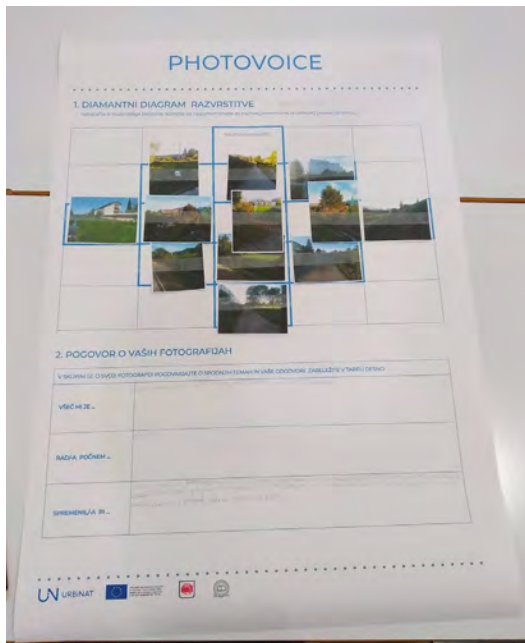


Figure 5.149: The photovoice final poster in Djaski Dom



Figure 5.150: Photovoice session in Djaski Dom



Figure 5.151: Photovoice session in Djaski Dom



Figure 5.152: Photovoice session in Djaski Dom

Dijaški dom residents noted they prefer the natural paths above paved ones, as well as the natural looks of the stream and vegetation. They believe that the area is slightly dull though and would like to have some bar to spend time there. They believe the area should be maintained better, considering larger vegetation, the urban furniture and the number of/emptying the bins, which are constantly overloaded. They would like to have a continuous connection from Koren towards the Panovec Trim track and a new skate park (polygon), as they enjoy existing recreation spaces; they also believe the connection to Kostanjevica and the city train station is not safe enough. The area is also dark, so they are suggesting more public lighting. They enjoy the vast green areas around their dormitory and would like to have more social spaces outside their home edge.

5.4.2.3. Territorial Mapping

As said, a traditional territorial analysis was never performed in the area, with the aim to highlight potentials for enhancement through planning NBS. Following CIBIO's methodologies of Mapping existing pedestrian networks and identifying vacant lots for the Healthy Corridor and NBS, the territorial mapping in Nova Gorica focused on:

- assessing the existing path as present in the official maps. Since the formal pedestrian paths could be collected from the official GIS database, the fieldwork focused on informal pedestrian paths (line), reduced safety (Δ) and barriers obstructing walking and movement (x).
 - Over the years, Nova Gorica has formalised/paved many informal shortcuts made by people. In the current works around Koren, people are displeased by the new pavements, as they prefer softer surfaces in the "natural environment", such as grass and sandy paths. The remaining shortcuts have been mapped, but their formalisation typology should be reconsidered.
 - Naturally formed stumblers are another issue. Nova Gorica is rich in tall mature trees, planted as a botanical garden, whose roots now create unevenness, forming stumblers and moving curbs. Partial repairs in pavements and on shafts are another cause for them.
 - Another barrier, for which the city has already implemented a new strategy, is universal access for all. Gradually the city is removing/repairing the obstacles.
 - The reduced safety is usually an issue of lower visibility either by vegetation or urban furniture, signs and bins.
- Assessing the underused or abused spaces. Based on the participants' perception, vacant or deficient areas (-) or underused areas with potentials for new uses (+) have been mapped. However, the concept of Nova Gorica is an open city, with vast green spaces among the residential and administrative parts of the city, which should be taken into consideration.

Participants received prepared A3 maps with instructions on one side and their selected zone map on the other side.



Figure 5. 153: On the front page of the A3 paper, observers could refer to when mapping, to be reminded about the methodology. The mapping of the path could be done by drawing on the map the approximate path and its length. The mapping of underused spaces could be made by drawing the shape of the area and putting a + in case of potential or a minus in case of abuse or underuse.



Figure 5. 154: The second page was the map of the area, wide enough to let observers sign whatever they noticed.



Figure 5. 155: Observations of the informal paths in area 4, part left. To be noticed as interesting data the use of the area right on the border dividing the two cities, highlighting the interest of use of both populations



Figure 5. 156: Observations of the informal paths in the area 4, part right



Figure 5. 157: Vacant/underused lots in area 4, left part (West)



Figure 5. 158: Vacant lots in area 4, right part (East)

PATHS Synthesis map, elaborated through GIS and CAD. The Map clearly highlights the impediments of walking, the obstacles, and the informal paths in the selected areas. This is certainly a basis to replan the space through micro interventions, as well as to add possible services to the community.



Figure 5. 159: Examples of impediments/obstacles or dangerous elements in the spots



Figure 5. 160: Example of informal path entering the Kostanjevica wood



Figure 5. 161: the impediments of the corridor in Zone 1

VACANT synthesis Map that clearly put in evidence the spots of the area to be reimaged



Figure 5. 162: Example of underused spots. This green was evidenced as badly maintained and potentially converted into flowered garden, eliminating cars in front



Figure 5. 163: Example of underused spots in front of the soccer field in the area, clearly showing its present use for informal parking



Figure 5. 164: Examples of potentials of some spots in zone 1

Conclusions of Territorial Mapping

We have already drawn some conclusions in the dedicated sections. The territorial mapping could highlight the spatial lacks and potential of the area, including how it is presently used, underused, or abused by the local population. The methodology should be replicated, by assigning different positions to operators, or selecting new ones, given that not always interpretation is the same during the observation, and perception or experience on space quality is different.

5.4.2.4. Site analysis (Soil and Water)

In 2018 a report for the city of Nova Gorica was issued by the laboratory of analyses of the University of Nova Gorica, led by prof. Mladen Franko (who was also part of the UNG team for URBINAT), entitled "Soil quality in city gardens in the area of Nova Gorica (Final Report)". It focused on the urban vegetable gardens of the city, as practiced by the population, and covered almost the entire territory of the city, considering though that the Koren has a very important presence of this practice.

Food self-sufficiency has recently become increasingly important. People are getting more and more

interested in growing their own food, which has consequently expanded gardening in Slovenia. More frequent gardening, however, occurs not only in rural areas but also in urban areas. Growing food in urban areas can be problematic as cities become more and more polluted by traffic, industry, and other activities. Dangerous substances in the soil are invisible to humans, but more than this substance pose a threat to the environment and people.

To be able to determine how good the soil in the gardens in the urban area of the City Municipality of Nova Gorica, we began to carry out monitoring and analysis of land from urban gardens, which envisages the implementation of soil quality analyses from 30 urban gardens in the area of the Municipality of Nova Gorica.

Vzorčno mesto	Tekstura	Vsebnost vlage (%)	Vsebnost organske snovi (%)	Kapaciteta zadrževanja vode (g H ₂ O/100g prsti)	Mikrobna aktivnost (mg CO ₂ /uro)	pH	Prevodnost (μS/cm)
1	Ilovica	15,3	5,5	39,5	0,46	7,4	217
2	Ilovica	16,3	6,4	64	0,37	7,4	226
3	Meljasto glinasta ilovica	15,2	8,8	38,3	0,64	7,3	273
4	Meljasto glinasta ilovica	19,1	9,6	63,1	0,64	7,6	196
5	Peščeno glinasta ilovica	15,7	7,3	38,6	0,41	7,4	161
6	Peščeno glinasta ilovica	15,9	9,7	44,4	0,73	7,9	158
7	Meljasto glinasta ilovica	17,9	7,7	47,8	0,46	7,3	552
8	Meljasto glinasta ilovica	31,8	10,3	*n.d.	0,46	7,5	166
9	Peščeno glinasta ilovica	18,8	10,1	34,9	0,46	7,6	213
10	Peščeno glinasta ilovica	6,6	7,5	26,1	0,55	7,7	186
11	Ilovica	14,0	8,5	54,1	0,46	7,6	584
12	Ilovica	13,8	6,3	57,4	0,46	7,1	224
13	Meljasto glinena ilovica	18,0	5,3	67,8	0,27	7,2	298
14	Ilovica	21,0	6,1	67,7	0,18	6,8	273
15	Peščeno glinasta ilovica	17,1	4,4	61,3	0,64	7,2	275

Table 5. 90: The table is showing the results of: soil texture, moisture content, organic matter content, water retention capacity, microbial activity, pH and conductivity.

(only a part is displayed)

We report here only two summarizing tables of the research, namely on the presence of heavy metals and nitrate.

Vzorčno mesto	Težke kovine				
	Fe (mg/kg)	Pb (mg/kg)	Zn (mg/kg)	Cu (mg/kg)	Cd (mg/kg)
1	13,5 ± 0,3	20,8 ± 0,6	61,0 ± 1,8	25,8 ± 0,1	0,38 ± 0,02
2	15,4 ± 0,8	16,5 ± 0,6	33,1 ± 0,6	52,5 ± 0,1	0,61 ± 0,02
3	10,7 ± 0,5	22,5 ± 0,6	80,2 ± 0,7	65,7 ± 0,5	0,35 ± 0,01
4	8,0 ± 0,2	41,8 ± 0,6	35,1 ± 1,0	63,3 ± 0,4	0,20 ± 0,01
5	11,4 ± 0,4	61,9 ± 1,1	81,7 ± 0,8	54,6 ± 0,9	0,62 ± 0,02
6	17,7 ± 0,7	17,4 ± 0,6	38,4 ± 0,5	58,4 ± 0,2	0,35 ± 0,01
7	19,6 ± 0,9	49,7 ± 1,1	93,1 ± 0,6	36,5 ± 0,1	0,42 ± 0,02
8	15,8 ± 0,2	42,3 ± 1,1	40,0 ± 0,6	47,4 ± 0,1	0,73 ± 0,03
9	10,3 ± 0,1	8,5 ± 0,6	50,3 ± 0,9	27,7 ± 0,3	0,80 ± 0,03
10	15,9 ± 0,2	34,5 ± 0,6	41,9 ± 0,7	44,4 ± 0,3	0,51 ± 0,02
11	12,8 ± 0,4	73,9 ± 0,6	98,8 ± 0,8	56,2 ± 0,2	0,10 ± 0,01
12	11,5 ± 0,3	52,4 ± 1,1	34,9 ± 1,5	45,9 ± 0,1	0,23 ± 0,01
13	15,2 ± 0,4	52,1 ± 1,7	67,2 ± 0,6	48,8 ± 0,5	0,15 ± 0,01
14	10,0 ± 0,1	61,3 ± 1,1	39,1 ± 0,3	64 ± 2	0,55 ± 0,02
15	8,5 ± 0,1	49,2 ± 1,1	88,0 ± 0,7	52,7 ± 1,2	0,10 ± 0,01
16	12,7 ± 0,2	47,7 ± 1,3	39,0 ± 1,3	46,8 ± 0,3	0,64 ± 0,03
17	10,8 ± 0,1	34,4 ± 1,1	87,5 ± 0,4	51,3 ± 1,1	0,80 ± 0,05
18	3,0 ± 0,1	54,8 ± 1,9	42,2 ± 0,3	53,7 ± 1,1	0,60 ± 0,02
19	4,5 ± 0,1	33,7 ± 0,6	82 ± 2	48,6 ± 0,4	0,77 ± 0,03
20	3,3 ± 0,2	27,8 ± 0,6	32,2 ± 2,3	36,8 ± 0,2	0,80 ± 0,05
21	5,0 ± 0,1	44,1 ± 0,6	43,1 ± 3,3	9,5 ± 0,2	0,30 ± 0,01
22	29,6 ± 0,9	39,6 ± 1,1	36,6 ± 1,6	62,1 ± 0,3	0,88 ± 0,05
23	12,7 ± 0,2	11,50 ± 0,03	45,3 ± 5,2	69,7 ± 1,6	0,40 ± 0,05
24	4,6 ± 0,2	37,8 ± 2,5	26,2 ± 3,6	53 ± 1	0,50 ± 0,02
25	5,2 ± 0,2	52,8 ± 0,7	31 ± 1	66,8 ± 2,3	0,63 ± 0,05
26	27,3 ± 0,4	42,9 ± 0,6	36,8 ± 0,1	73,6 ± 0,6	0,48 ± 0,02
27	6,1 ± 0,1	63,9 ± 0,8	83,5 ± 0,6	55,2 ± 0,1	0,46 ± 0,02
28	4,6 ± 0,1	55,4 ± 5,5	35,7 ± 0,3	47,2 ± 0,2	0,89 ± 0,04
29	26,8 ± 0,3	89,90 ± 1,02	75,5 ± 0,3	36,3 ± 0,4	0,50 ± 0,02
30	26,1 ± 0,2	63,9 ± 0,8	28,7 ± 0,1	66,5 ± 0,6	0,43 ± 0,02
Območje izmerjenih koncentracij (mg/kg)	3,0 – 29,6	8,5 – 89,90	26,2 – 98,8	9,5 – 73,6	0,10 – 0,89
Povprečna vrednost	13 ± 7	44 ± 19	54 ± 23	51 ± 14	0,51 ± 0,23
Mediana	11,5	43,5	42,1	52,5	0,50

Table 5..91 showing the concentrations of heavy metals present in the soil (Fe, Pb, Zn, Cu and Cd)

Vzorčno mesto	Anioni		Organoklorini pesticidi (ng/g)
	Nitrat (mg/100g)	Fosfat (mg/100g)	
1	9,2 ± 1,5	7,1 ± 1,2	Pod LOD
2	11,1 ± 1,5	10,6 ± 1,3	Pod LOD
3	17,6 ± 1,5	7,6 ± 1,2	Pod LOD
4	4,9 ± 1,5	6,9 ± 1,2	Pod LOD
5	5,8 ± 1,5	5,0 ± 1,2	Pod LOD
6	15,9 ± 1,5	8,4 ± 1,1	Pod LOD
7	16,9 ± 1,5	9,7 ± 1,0	Pod LOD
8	8,7 ± 1,6	8,6 ± 1,2	Pod LOD
9	10,9 ± 1,5	19,7 ± 1,2	Pod LOD
10	5,6 ± 1,5	5,0 ± 1,0	Pod LOD
11	17,4 ± 1,5	7,0 ± 1,0	Pod LOD
12	12,5 ± 1,5	5,5 ± 1,2	Pod LOD
13	4,4 ± 1,3	7,1 ± 1,2	Pod LOD
14	6,6 ± 1,4	5,4 ± 1,1	Pod LOD
15	18,5 ± 1,5	6,5 ± 0,6	Pod LOD
16	5,6 ± 1,2	6,7 ± 1,1	Pod LOD
17	6,6 ± 1,6	5,5 ± 1,3	Pod LOD
18	6,8 ± 1,4	7,9 ± 1,2	Pod LOD
19	5,8 ± 1,5	4,7 ± 1,2	Pod LOD
20	3,6 ± 1,5	4,7 ± 1,2	Pod LOD
21	6,9 ± 1,6	5,7 ± 1,2	Pod LOD
22	5,8 ± 1,5	6,8 ± 1,4	Pod LOD
23	9,9 ± 1,3	5,7 ± 1,2	Pod LOD
24	7,5 ± 1,6	4,9 ± 1,1	Pod LOD
25	5,8 ± 1,5	6,8 ± 1,2	Pod LOD
26	5,7 ± 1,4	9,4 ± 1,2	Pod LOD
27	6,8 ± 1,5	6,9 ± 0,8	Pod LOD
28	3,7 ± 1,5	9,5 ± 1,2	Pod LOD
29	6,7 ± 1,5	7,9 ± 1,2	Pod LOD
30	8,0 ± 1,3	4,6 ± 1,0	Pod LOD
Območje izmerjenih koncentracij (mg/100g)	3,6 – 18,5	4,6 – 19,7	Pod LOD
Povprečna vrednost	9 ± 4	7 ± 3	Pod LOD
Mediana	6,80	6,85	Pod LOD

*LOD – spodnja meja detekcije (v našem primeru je spodnja meja detekcije 2 ng/g).

Table 5..92: showing the Nitrate and phosphate concentrations, and the presence of organochlorine pesticides

Analyzes of 30 soil samples taken in urban gardens in cadastral municipalities were performed Kromberk, Nova Gorica, Rožna Dolina, Solkan and Šmihel show that the soil is textured predominantly clayey with a relatively high content of organic matter (4.4 - 11%), hence good water retention capacity in the samples taken is also associated. Soil pH is neutral range (pH = 6.8 - 9), and the microbial activity of the tested samples is mostly proportional percentage of organic matter in the soil, and in some cases lower microbial activity indicates poor soil ventilation.

Based on the results of soil conductivity measurements, the samples can be classified as normal soils (conductivity <4000 $\mu\text{S} / \text{cm}$).

Concentrations of nitrate in the soil in individual cases indicate the use of mineral fertilizers, which, however, is not excessive and does not pose a danger to the environment, as in the winter content nitrate nitrogen did not exceed 100 kg / ha. On the use of mineral fertilizers, however, only exceptionally show phosphate concentrations, since from the measured concentrations we can conclude that the soil is on sampling sites, with the exception of one sample only poorly and moderately well stocked with phosphorus.

The presence of heavy metals can show us the impact of industry and transport on soil quality. It can be concluded that at the sites covered in this study, soil iron concentrations are low, and they do not reflect the potential influences of the industry. In the case of cadmium and zinc concentrations do not exceed the limit values for these two metals in the soil at any sampling point. In the case of lead it is exceeded at only one location, which is still lower than the warning value. In the case of copper, we found that the limit values for copper in soil were exceeded at eight locations.

A possible reason for exceeding the limit values may be the use of copper plant protection products. Garden owners are advised to use only to reduce these. In general, we find that the concentrations of Zn, Pb and Cd in the soil are in the area of Nova Gorica comparable or even lower than in the wider area of Slovenia. A few higher concentrations than the average concentrations of these elements for the whole Nova Gorica area Gorizia mainly indicates the possibility of the impact of traffic. Exceeding the limit values in the case Copper, which was found in 26.7% of all studied samples, is otherwise minimal (up to the maximum 23% above the limit value of 60 mg / kg) and does not exceed the warning value (100 mg / kg) but is due to long-term exposure of the environment to copper-based plant protection products (mainly due to viticulture in the wider Goriška region) also expected.

Organo chloride pesticides were not detected in the entire area, or. were their concentrations below the detection limit.

We can conclude that the soil in the city gardens in the MONG area is suitable for gardening, however, gardening methods do not pose a risk of overburdening the environment. It should be said that **more appropriate gardening methods** could in some cases further improve soil quality and also reduce soil load in the long run, especially in the case of copper.

5.4.2.5. Face-to-face interviews

This methodology could not be implemented, given a sort of absence of methodology available for the entire partnership. It should consist in assessing the perception of NBS in the city by interviewing different segments of stakeholders, namely public, private and third sector.

It will be soon put in place, whenever interviewing will become safer. An alternative solution was to produce on-line or hybrid forms to interview that could enable respondents (in this case potentially skilled in ICT) about the use or potential of NBS in the city.

In addition, UNG is planning with MONG to launch a set of Webinars on NBS, scheduled monthly, to introduce the different NBS and inspire local businesses. This initiative will be done in English, in line with the objectives of the Culture Capital 2025 (and taking advantage of the language capacities of most Slovene population) and will be connected to the 2.2 Task, Networking, for its relevance to the entire partnership and CoP of URBiNAT. The format will be similar to the one used by Siena in mid 2021 and reported below as an example.

19 Maggio – ore 18.00

Una città a misura di anziano

Tra soli 15 anni, il 60 % delle persone vivranno in città e un quarto di loro avrà più di 60 anni. Sarà quindi sempre più importante progettare città "age-friendly", che tengano conto di aspetti interdisciplinari che vanno dalla psicologia, all'urbanistica, all'architettura e alla sociologia. L'obiettivo sarà quello di pensare a un "invecchiamento attivo" inteso come partecipazione continua a tutti gli aspetti della vita sociale, economica, culturale, spirituale e civile. Per fare ciò è necessario coinvolgere in primis i cittadini anziani chiedendo loro di identificare i problemi che ritengono fondamentali per lo sviluppo delle città e considerarli come attori chiave nella pianificazione. Ne parleremo con l'Assessore all'urbanistica di Pisa **Massimo Dringoli** che ha partecipato insieme ad altri comuni dell'area pisana al progetto "Urban health – movi-menti", promosso dal Centro nazionale per la prevenzione e controllo delle malattie del ministero della Salute. Il progetto ha visto il coinvolgimento di gruppi di volontari (dai 55 ai 77 anni) che hanno partecipato all'elaborazione di progetti di rigenerazione urbana per favorire l'attività fisica, la partecipazione sociale e la prevenzione del decadimento cognitivo. Nella seconda parte dell'incontro ascolteremo l'esperienza delle "**Commissioni solidarietà e mutuo soccorso**" del Magistrato delle Contrade di Siena, nelle parole di **Stefano Marini** che ha ricoperto fino a pochi mesi fa il ruolo di referente per le Commissioni. Un contesto peculiare che garantisce il sostegno e l'ascolto con iniziative specifiche per gli anziani.



Massimo Dringoli

Assessore all'Urbanistica e riuso del patrimonio edilizio esistente, edilizia privata e mobilità urbana – Comune di Pisa

Nato a Roma nel 1940, laureato in Ingegneria Civile Edile nell'Università di Pisa, è Professore Ordinario di Architettura Tecnica presso l'Università di Pisa, Direttore del Dipartimento di Ingegneria Civile dal 2003 al 2010. Relatore di oltre 350 tesi di laurea, è autore di oltre 160 pubblicazioni. Nella sua attività professionale si è occupato di progettazione statica, architettonica ed urbanistica.

È attualmente Assessore all'Urbanistica nel Comune di Pisa.



Stefano Marini

Nato a Siena nel 1969 da babbo selvaiole e mamma istriciaiola, ha sempre dedicato tempo e passione alla Contrada della Selva, di cui è stato eletto Priore nel 2015.

*All'interno del Magistrato delle Contrade, è stato il primo referente delle "**Commissioni solidarietà e mutuo soccorso**", ruolo che ha avuto il privilegio di ricoprire fino al marzo 2021. È sposato, non ha figli, ha un cane. Esercita la professione di avvocato. Non è "social".*

5.4.2.6. Well-being, Neighbourhood survey

The Neighbourhood Survey methodology foresees telephone, field, or hybrid surveying of adult people. In Nova Gorica and partly Gorizia, the testing of methodology foresees a hybrid approach, offering online tools, as well as a paper form. This is how people who are not proficient in digital uses could also participate.

An intense preparation was made with the OW, which is responsible for the methodology. The discussion highlighted the importance of achieving a basic set of data, that should be proportioned to the n. of inhabitants living in the corridor. The counts said that for an approximated number of inhabitants of 3000, there should be at least 350 replies to the questionnaires, which seemed immediately a big number considering the relatively low success of other partners in getting such results. The expected minimum achievement for Nova Gorica is 200 replies, taking at least 2 months for a full survey that will be possibly carried out in the months of December 2021 and January 2022, once the works on the Koren area for the bike lane will be concluded.

The surveying areas have been selected and will be the same adopted and defined for the territorial and behavioural mapping and previously described. but the methodology questionnaire still has to be translated into Slovene and Italian.

We report here on page, extract from the Google questionnaire source that will be used for mobile phones or PC, in English, that could be spread also by simple Qr Codes.

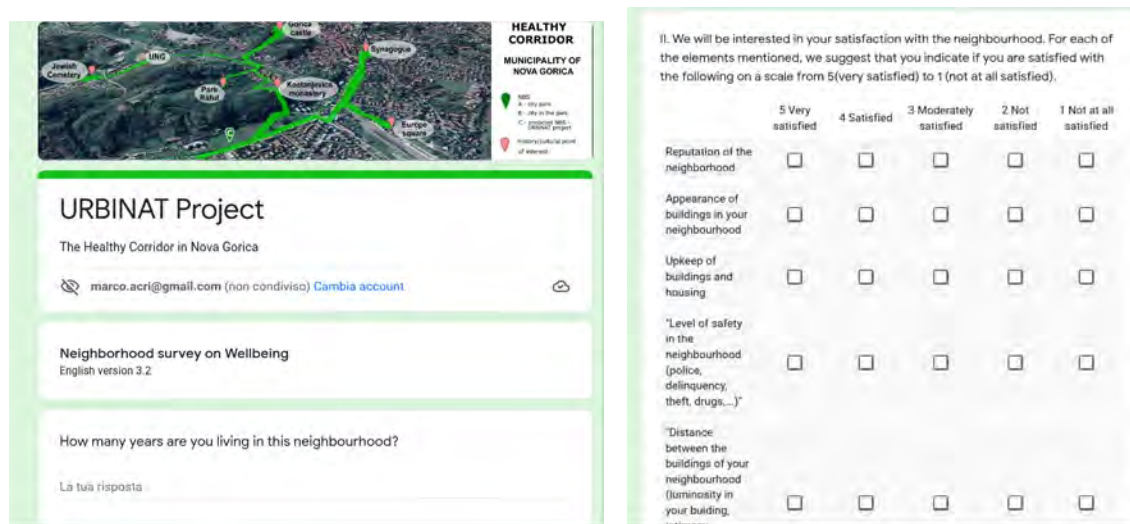


Figure 5. 165: Extract from the online questionnaire for Well-being in English (translation into Slovene only in paper)

5.5. Nature based solutions

The city of Nova Gorica and the city of Gorizia have already implemented quite an important number of nature-based solutions, NBS, that are part of the catalogue or out of it. We refer mostly to the Territorial and technological, but also social and economic practices are in place, although not fully in the area of the corridor. In this respect there are potentials to develop more and more

tools, also thanks to the application of some URBINAT practices during the second stage of the diagnostics: For example the dialogue with the tenants of the Dijaški Dom made us understand there there is room and need to put in place social practices to integrate more the users of the Dom as well as offer their services to the local citizens.

5.5.1. Territorial Nature Based Solutions

Name and Type of the NBS: Retention basin

Location: Nova Gorica, in the Koren delta south of the commercial area named Qlandia and in Rožna Dolina, Pristava

The NBS: the retention basin consists of a retention area that collects the water in flooding risks. The area should prevent water flooding in intensively living spaces, in this case the commercial areas in the north and south of the city.



Figure 5. 166: Retention basin of the Koren towards Ajševica



Figure 5. 167: Retention basin of the Koren towards the city

Name and Type of the NBS: Wildlife Park

Location: Nova Gorica-Pristava below Kostanjevica Monastery, And the lower part of Via della Cappella towards Kostanjevica Monastery.

The NBS: The wildlife park in Nova Gorica can be found in different locations. The main example could be found along the Koren area close to the stream, although many other spots where it merges with the urban forest can be identified. Here below some pictures, taken along the Koren and towards the city of Gorizia



Figure 5. 168: The little spots of wildlife parks along the Koren, South-North

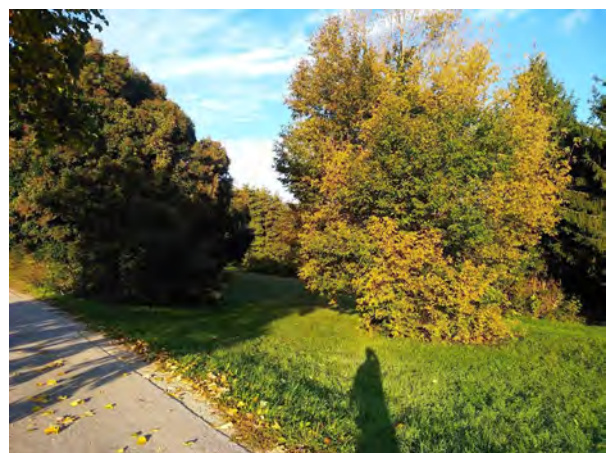


Figure 5. 169: The little spots of wildlife parks along the Koren, North South



Figure 5. 170: Pictures of a wildlife park below the Kostanjevica Monastery, looking at Gorizia



Figure 5. 171: Example of a wildlife garden, private, in Pristava, below the Kostanjevica Monastery (especially designed for biodiversity increase)

Name and Type of the NBS: Terraced landscape

Location: Nova Gorica-Pristava below Kostanjevica Monastery, and the lower part of Via della Cappella towards Kostenjevica Monastery.

The NBS: The terraced landscape consists of artificial terraces for the cultivation and pasture, managing potential landslides. Terraced landscape is however quite a common practice in the area for the cultivation of different vegetables and fruits, mainly grapeyards for wine production. However, the plantations of olive trees, plum trees and flowers, is also very practiced.



Figure 5. 174: The terraced landscape from the rose garden of Kostanjevica



Figure 5. 175: The terraced landscape from the stairs down to Pristava



Figure 5. 172: The previously terraced landscape looking Rafut Villa and park



Figure 5. 173: Terraced bank, newly made, on the Koren stream, jointly with the bike path.

Name and Type of the NBS: Autochthonous urban Forests

Location: Panovec, Gorizia Castle, Rafut

The NBS: The urban autochthonous forests in Gorizia and Nova Gorica are exceptional and very present. There are examples in the corridor area that are used by the populations of both cities. The Panovec wood for example extends from the Kostanjevica monastery touching different locations of the city of Nova Gorica and is one of the preferred spots for urban tracking, walking, biking. The Wood below the castle of Gorizia is also used by families, thanks to its attractive environment and the presence of the castle itself.



Figure 5. 176: Path in the Urban Forest



Figure 5. 177: Path in the urban forest



Figure 5. 178: The Forest around Kostanjevica in early morning

Name and Type of the NBS: Green Facade

Location: Erjavčeva ulica towards Koren

The NBS. This solution was applied privately by 1 block holder and kept along the years, probably for aesthetic reasons more than as an insulating solution. However, this practice is becoming more frequent in the area, also towards the Italian border.



Figure 5. 179: only “green” facade in the city of Nova Gorica

Name and Type of the NBS: Beehive provision

Location: Along Koren, Osnovna Šola Frana Erjavca

The NBS. This solution was implemented as an educational and practice pavilion for children of the elementary school. It is organised as a gazebo, beehive keeping and hosting



Figure 5. 180: Beehive interpretation box in the Osnovna Šola Frana Erjavca



Figure 5. 181: Private beehives below the Kostanjevica Monastery, accessible to all.

Name and Type of the NBS: Green draining park

Location: Trubarjeva ulica, Stadion, Delpinova ulica and many other locations also among the blocks in the koren

The NBS. This solution consists in paving car parking with distanced bricks to permit draining of the soil, keeping lower temperature in summer and the filtration of water.

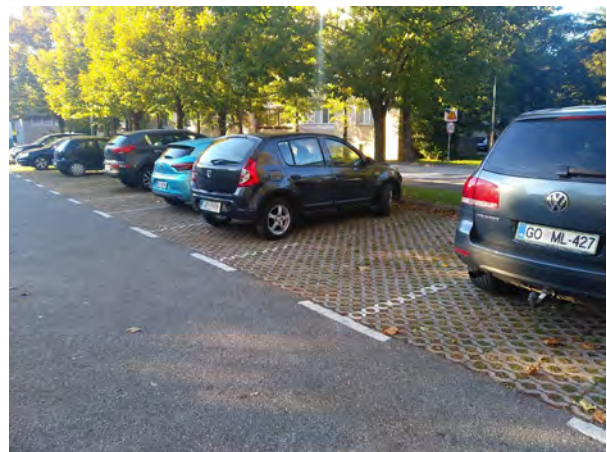
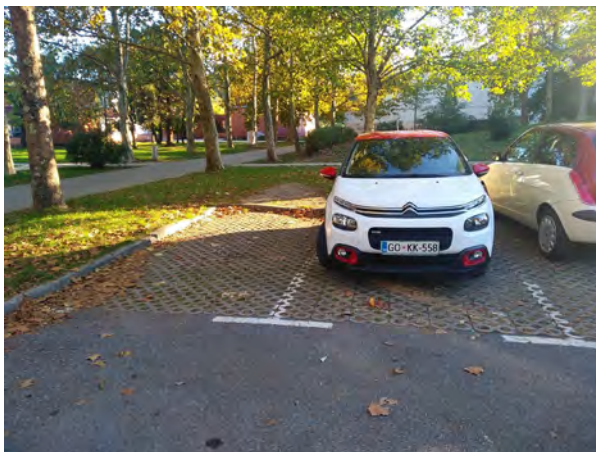


Figure 5. 182-185: Examples of draining parking/green parking in Nova Gorica in the Corridor area

Name and Type of the NBS: Trees Street

Location: Almost all streets in Nova Gorica

The NBS. This solution consists in planting deciduous trees on both sides of the street to provide shade in summer and letting sunlight in the winter. Effect is a reduction of temperature on hotter days. In Nova Gorica this is also a planning solution, suggested by the “father” of the city, the Architect Ravnikar, who explicitly planned the plantations along the main streets over the pedestrian paths, mostly in the main streets designed by him, Erjavčeva and Kidričeva ulica. The following implementations were changed, despite the ideas of Ravnikar, planting in a “botanic garden” style, thus with no geometric order and mixing the species.



Figure 5. 186: Park in front of the Osnovna šola Frana Erjavca (Primary school) close to the Koren



Figure 5. 187: Image of the ongoing renovation for pedestrianization of Delpinova ulica

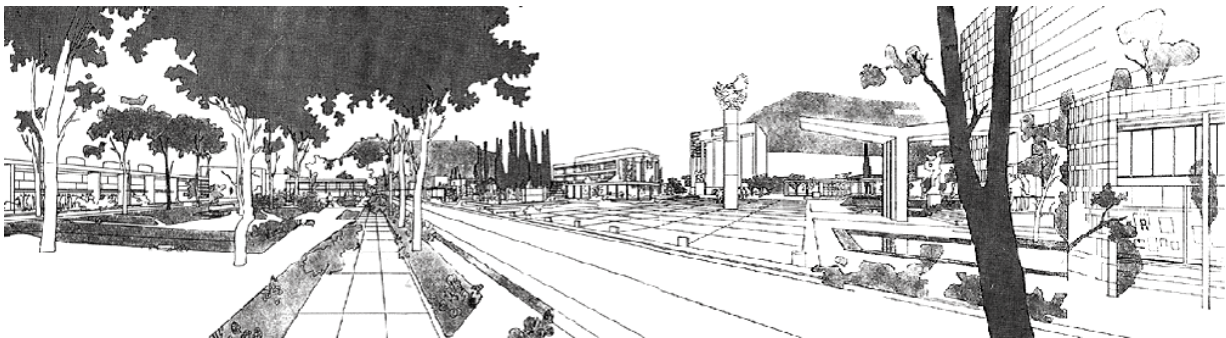


Figure 5. 188: Picture of the original drawing of the Architect Ravnikar showing the roads plantation systems

5.5.2. Technological Nature Based Solutions

Name and Type of the NBS: Green roof

Location: Kostanjevica South Slope, private initiative ENOTA

The NBS. This solution was applied privately by the ENOTA firm on the slope towards Kostanjevica. It is an example of architecture merging structures and nature, as shown in the pictures. This architecture also includes the terraced landscape, which was created to host the building.



Figure 5. 189: Private ecosystemic/biodiversity garden in Pristava (Near Kostanjevica)



Figure 5. 190: Green infrastructure/roof in private building in Pristava (near Kostanjevica)

5.5.3. Participatory NBS

Name and Type of the NBS: Pedibus and Pešbus

Location of the workshop: Nova Gorica and Gorizia

The NBS: it is a participatory practice of taking children to school by walking in gathering spots. Children are gathering along the path, as if it was a bus, but walking accompanied by adults.



Figure 5. 191: Brochure of the Pedibus with path description

Name and Type of the NBS: Shared Biking (also for Energy production)

Location: Movable location, Sport centre

The NBS. This solution was implemented by the municipality taking the inspiration from the passing Giro d'Italia and Tour of Slovenia in 2021. It consists of a few fixed bike stations providing energy to the municipal system by means of people biking.



Figure 5. 191, 192: The energy bike sharing in Nova Gorica

Name and Type of the NBS: Healthy Playgrounds

Location: Different Locations, but not along the Koren

The NBS. This solution is becoming more and more frequent in many cities and consists in providing leisure facilities and fitness to children, to residents in general. It may have playgrounds, as well as tools for health enhancement



Figure 5. 193: Urban parks for leisure in the Corridor Area, zone 2



Figure 5. 194: Urban parks for leisure along the koren, before the bike lane

5.5.4. Social and Solidarity economy

Name and Type of the NBS: Solidarity markets

Location. Gorizia and Nova Gorica

The NBS. Organisations of volunteers collect second-hand objects and materials and redistribute them in the city or resell in movable and stable markets. examples are in the Solkan border, in the Nuovo Lavoro association in Gorizia, in the Mercatino La Ruota in Gorizia S. Andrea. There are also informal networks of second-hand objects and materials that are collected by local ladies and distributed to families in need in the city.

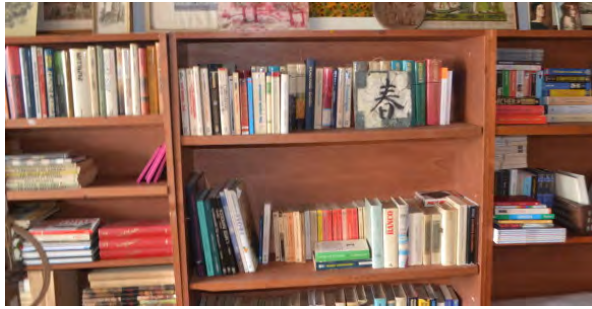


Figure 5. 195: Book sharing in Gorizia



Figure 5. 196: Solidarity market promotion in Gorizia

Name and Type of the NBS: Community Gardens

Location. Gorizia and Nova Gorica. Very intense along the Koren stream.

The NBS. This is an old practice both in Nova Gorica (Slovenia/Formal Yugoslavia) and Gorizia. It consists of offering public spaces to citizens to cultivate vegetables for private consumption. This practice was also debated in Nova Gorica in the ENOLL conference organised by URBiNAT in 2020.



Figure 5. 197-200: Several community gardens in different spots of the city of Nova Gorica

5.6. Baseline for the development of the healthy corridor

The work carried out through the Local Diagnostics highlighted important assets to be redeveloped, in addition to the existing ones, putting an emphasis on some societal needs in the area, namely:

- The work confirmed the importance of insisting on the Koren stream as the main line of development of the Koren. This means regenerating its banks, surrounding fields and doing this through appealing and innovative solutions.
- The Corridor has the potential for a connection between the two cities, in line with the efforts to reduce the cultural and historical divide and in line with the Culture Capital 2025 ideals.
- The cultural spots to be connected are the MONG municipal building, the historic blocks of Ravnika, the Kostanjevica Monastery, Villa Rafut and Via della Cappella. The Natural spots to link are the MONG park, The Panovec wook, the stream banks with the surrounding pocket forests and fields and the Kostanjevica terraced landscape, to be regenerated.
- The co-design will have to insist much on the provision of social spaces and facilities for youngsters and elders in the corridor area, especially along the Koren to allow them longer stays.
- The corridor should inspire a new use of the city, more sustainable, especially in respect to the common good dimension. This means limiting privatisation attempts and abuses of space and enhancing the common dimension.
- Although its important green dimension, the corridor seems to offer a low biodiversity, that was on the contrary very important in the past, thus working not only on the “human” interest but also to the interest of all “urban living beings”.
- Children are very important in the area; thus a big effort should be made to let them enjoy it at best, in coexistence with nature.
- Huge potential for Technological NBS has been noticed, in particular green facades, Green roofs, green terraces, Phyto depuration solutions, etc.

5.7. Conclusion

Given the still ongoing process in the understanding of the area, especially by means of co-monitoring, no conclusion can be made at this stage. Collaboration with people is important and this is something that has been missing so far in both cities.

Collaborating with people means getting inspired, but also **inspiring** and showing what others are doing towards a more sustainable territorial development that **breaks the rooted schemes**. The corridor of Nova Gorica can actually be a media in this regard.

The local diagnostics has been fundamental in gathering official and unofficial data about the selected area. In particular, the Second stage has been beneficial in confirming some of the expected needs for the neighbourhood as creating **new services to citizens, especially youngsters**, preserving or even enhancing the ecosystemic of the area of the corridor, highlighting the cultural spots instead of limiting their importance. By getting information from the citizens and inspiring them about the potential solutions provided by URBiNAT, the corridor will be an example of how **low-cost interventions** could be highly beneficial for a neighbourhood and its bigger urban context. In this process citizens of the two cities will have also to, through co-design and co-creation, make sacrifices on unwritten privileges of the past, such as **informal parking, overuse of plots, occupation of public soil**, but will happen to the benefits of the entire local collectivity. The exercises of the Second stage put an important start to the cooperation of the Living Lab, getting enormous attention by the local population about the

Moreover, the corridor should be a leisure place both for the citizens of Nova Gorica and for the ones of Gorizia, provided that both sides of the border are constantly merging for different socio-cultural reasons. In addition, the corridor in Nova Gorica has a very important cultural value because links relevant cultural spots such as the Koren Stream and the Rationalist/Socialist Neighbourhood, the Kostanjevica Monastery, the Rafut Villa, the Border, the Castle of Gorizia, Via della Cappella and back, as well as 2 different socio-cultural contexts, namely Italy and Slovenia, with clear communication impacts.

6. Siena

6.1. Introduction

The URBiNAT project will focus on a neighbourhood, namely Ravacciano, close to the old city and the green valley in-between, namely Ravacciano' Valley. Despite the good state of conservation, the valley has limited accessibility and the neighbourhood looks disconnected from the green area and from the city. The implementation of strategies for the development of healthy corridors connecting the neighbourhood and the city throughout the green valley is highly desirable, especially improving the ecosystems services that can be performed based on new cultural nature-based solutions.

The experience made in Ravacciano during the URBiNAT project aims at engaging citizens and public and private stakeholders in decision making and identifying good strategies to increase urban functions and services for the community. Moreover, it is expected to provide a replicable developmental model to be implemented in other valleys and neighbourhoods of the city in order to improve quality of life and promote healthy behaviors, including participation in cultural and social activities, raising awareness on local resources and ecosystem services, sustainable mobility and food attitudes.

This report presents outcomes from the Local Diagnostic (stage 1 and 2) in Siena. In particular, it identifies the case study area for the development of the URBiNAT project, namely Ravacciano neighbourhood and valley, and provides general information and a set of more specific data. The general overview of the urban area of Siena and the Ravacciano neighbourhood allows for understanding the main characteristics of the urban environment including both built and green areas. In particular, in order to support the determination and enforcement of healthy corridors, the report provides information on the following items:

- Municipality of Siena: most of the statistical data refer to the administrative boundaries of the Municipality. General data have been scaled down to the neighbourhood level based on population and a few other information available at the scale of census units. Moreover, site specific data on population and demography have been provided.
- Siena urban system: a series of maps have been elaborated to identify coherent boundaries of the urban system of Siena as a portion of the Municipality. This is taken from an independent research made by Romano & Pulselli (2020 - unpublished). The maps show main urban facilities and land use, including different categorisations for both built and green areas.
- Ravacciano neighbourhood: a specific area has been identified representing the target neighbourhood of the URBiNAT project as a portion of a wider urban environment including the green valleys of Ravacciano and Follonica. Nature Based Systems within the case study area, such as existing or potential green infrastructures performing ecosystems services, have been highlighted referring to different spatial scales.

The Local Diagnostic has a double scope. First, the information provided by Indaco2 allows the actors of the URBiNAT project – i.e., project partners, local experts and local stakeholders, including citizens - to easily understand the urban environment and better understand data to conduct the participatory activities of co-design of healthy corridors; second it allows experts to access and interpret basic datasets that have been uploaded in the URBiNAT Observatory portal for digital elaboration.

6.2. The city

The city of Siena is in the Tuscan region, central Italy, located in a hilly landscape in which agriculture and forests are the prevalent land uses. Together with high quality agriculture (e.g., winery and olive oil), tourism and the financial and banking sectors represent the most of local economies.

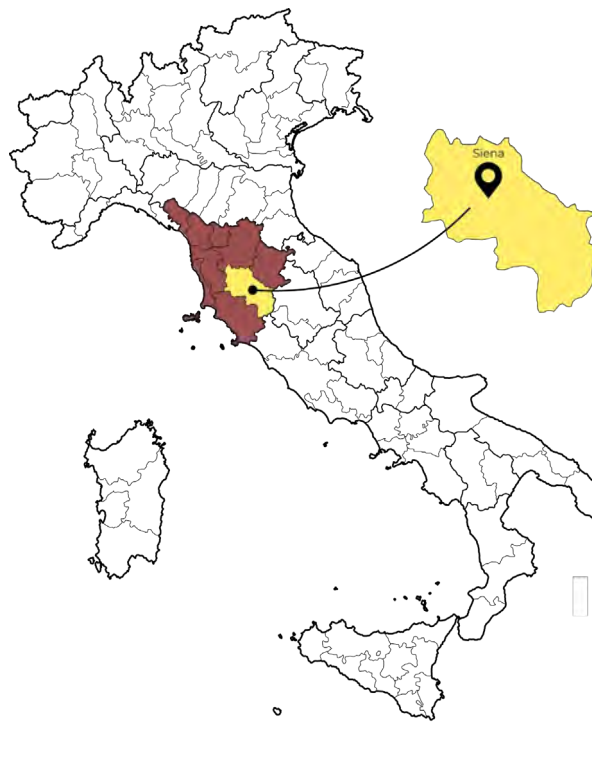


Figure 6. 1. Siena location.

The Municipality of Siena covers an area of 118.53 km² (average altitude 322 m over sea level, ranging from 167 m to 414 m), hosting 53,937 inhabitants (ISTAT 2018). The population density is 4.55 people/ha. Table 1 shows data in time series from 2010 to 2018 concerning a set of items.

Municipality of Siena	UNIT	2010	2011	2012	2013	2014	2015	2016	2017	2018
DATA										
Population	n.	54.543	52.800	52.883	54.126	53.943	53.903	53.772	53.901	53.937
Households	n.	25.560	25.739	25.781	25.482	25.340	25.593	25.666	25.884	26.087
Workers	n.	23.112	23.112	23.112	23.426	22.792	23.174	22.611	23.907	23.907
Vehicles	n.	51.316	51.743	51.903	51.520	51.280	51.264	51.518	51.916	52.361
Tourists	n.	1.062.164	1.024.298	1.076.279	1.028.483	1.128.873	1.044.664	1.004.778	1.055.406	1.066.951

Table 6. 1. Municipality of Siena. Population and other related data in time series. Source: ISTAT, ACI and Tourism Observatory.

Figure 6. 2 shows general data at the municipal level. Considering the number of households, i.e., 26,087, the mean number of people per household in Siena is 2.1. A set of additional statistical data concerning demography are reported in the demography section of this report. (Chapter 6.3.2.1).

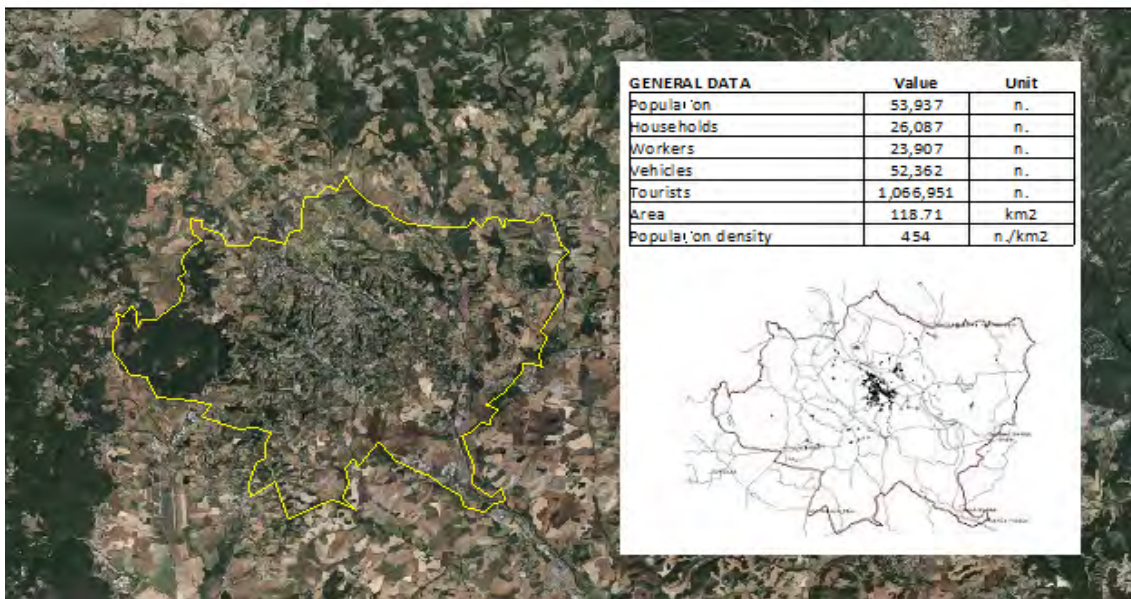


Figure 6. 2. Municipality of Siena. General data 2018.

Figure 6. 3 shows in time series, from 1954 to 2002 how the roads that meet the pole of the city of Siena act as guidelines for urban developments in this area.

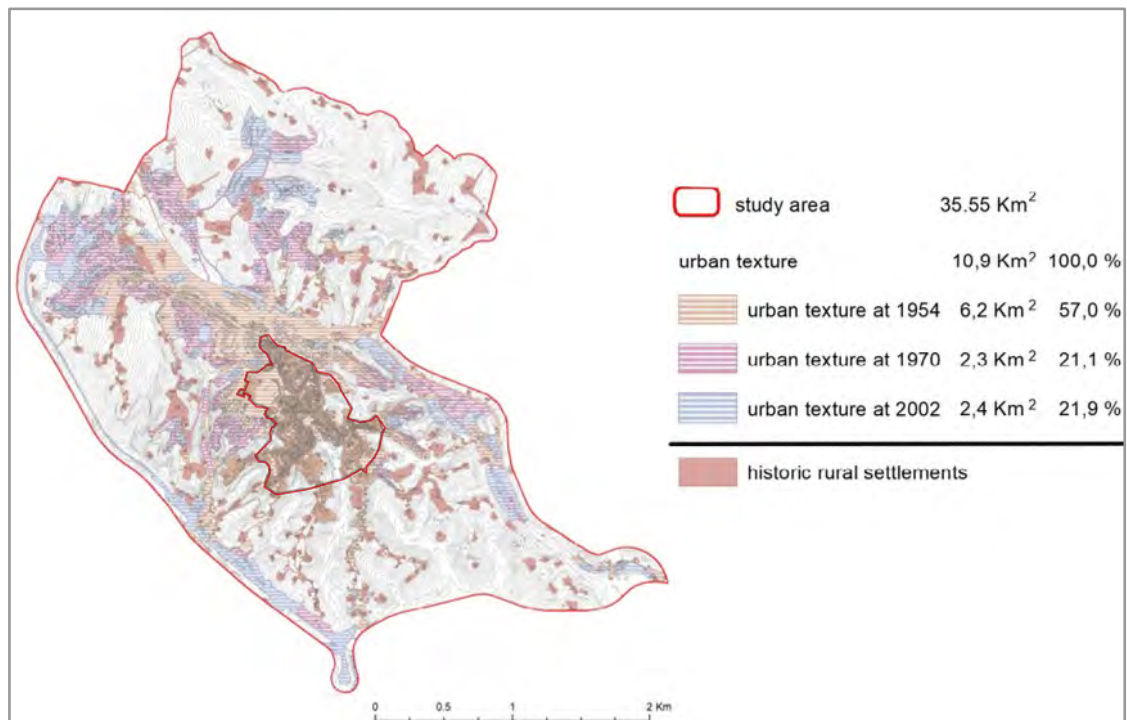


Figure 6. 3. Urban expansions 1954 - 2002. Source: Romano & Pulselli (2020 – unpublished).

6.2.1. Territorial description

6.2.1.1. Climate and Urban Environment

A climatic classification of the municipal area of Siena can be taken from the regulation used to determine the operation of the heating systems in buildings at local level. The climatic zone for the territory of Siena is D with a Degree-Days value of 1943.

Climatic Zone	Degree-Days	Period	Amount of h
A	municipalities with $DD \leq 600$	1st Dec - 15 Mar	6h per day
B	$600 <$ municipalities with $DD \leq 900$	1st Dec - 31 Mar	8h per day
C	$900 <$ municipalities with $DD \leq 1400$	15 Nov - 31 Mar	10h per day
D	$1400 <$ municipalities with $DD \leq 2100$	1st Nov - 15 Apr	12h per day
E	$2100 <$ municipalities with $DD \leq 3000$	15 Oct - 15 Apr	14h per day
F	municipalities with $DD > 3000$	All the year	no limitation

Table 6. 2. The Italian territory is divided into the following six climatic zones which vary according to Degree-Days .

Source: D.P.R. n. 412, 26 August 1993 updated until 31 October 2009.

Note: The Degree-Days (DD) of a location is the unit of measurement that estimates the energy needs necessary to maintain a comfortable climate in residential buildings. It represents the sum, extended to all days of a conventional annual heating period, of the average daily temperature increases necessary to reach the threshold of 20 °C.

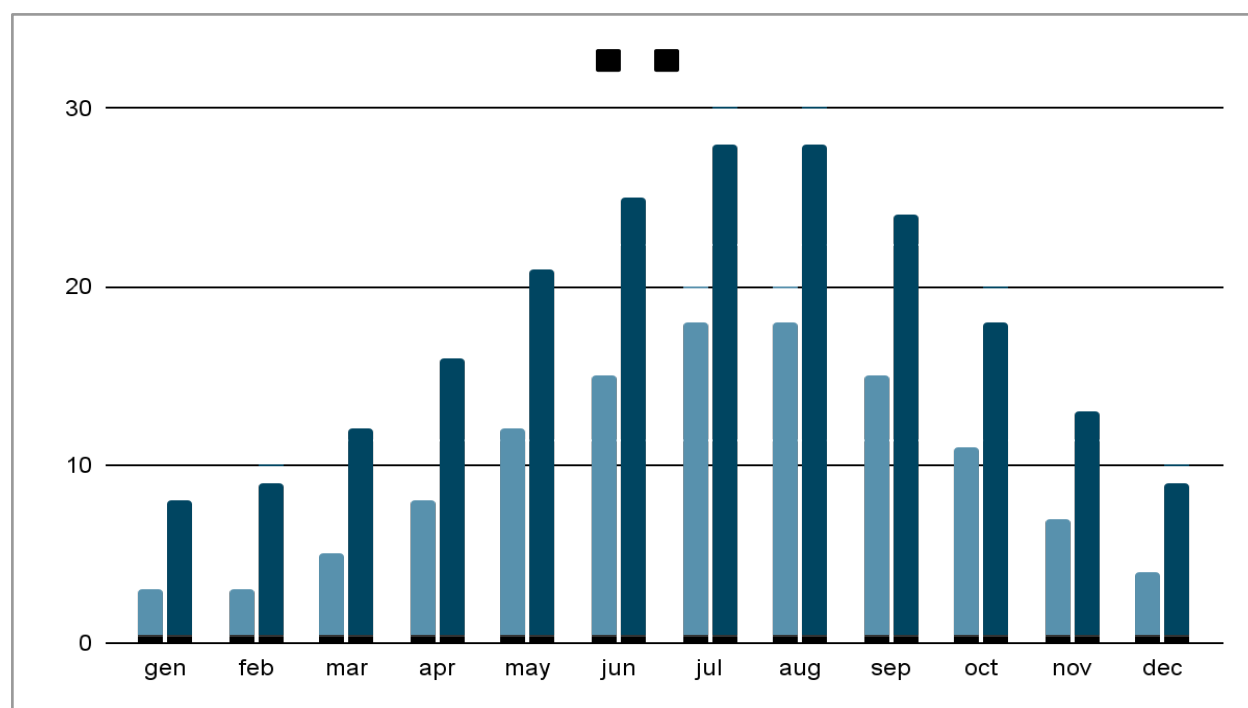


Figure 6. 4. Average monthly temperatures (°C) in Siena. Source: Siena weather station (Poggio al Vento) of the national meteorological network. Max. in BLU; Min. in LIGHT BLU

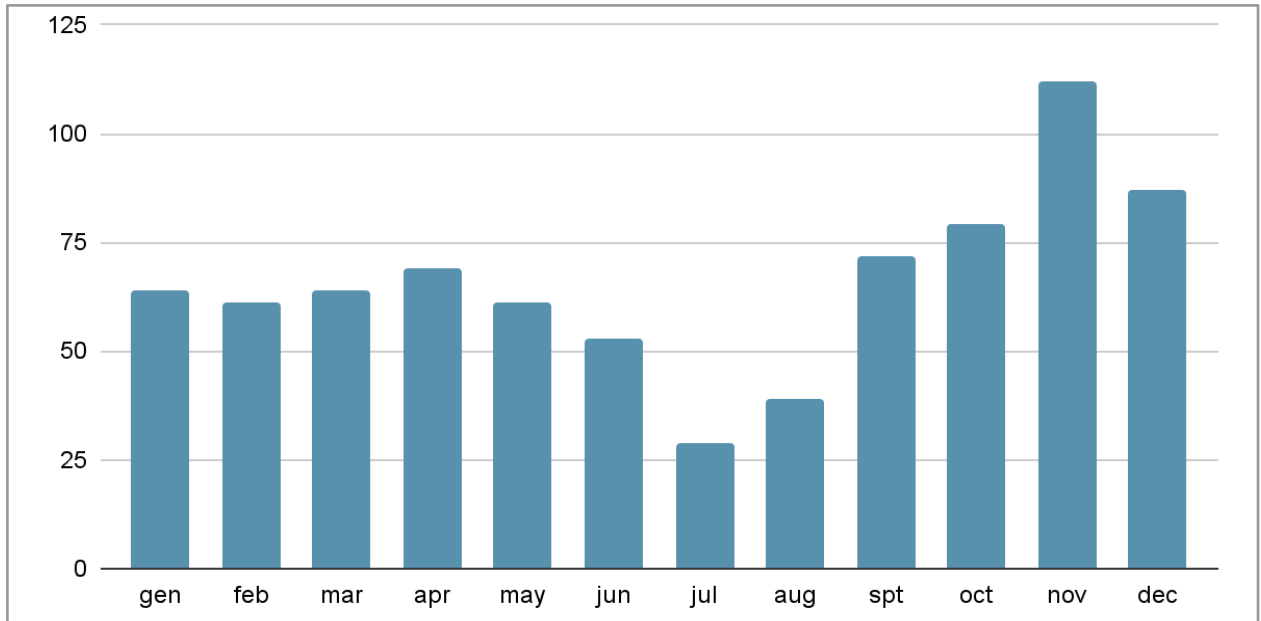


Figure 6. 5. Average monthly precipitations (mm) in Siena. Source: Siena weather station (Poggio al Vento) of the national meteorological network.

The following figures shows the average air quality on annual basis. Air quality does not represent a critical issue in the area of Siena. The annual limit value for the protection of human health corresponds to a value of **40** for PM10 and **25** for PM2.5.

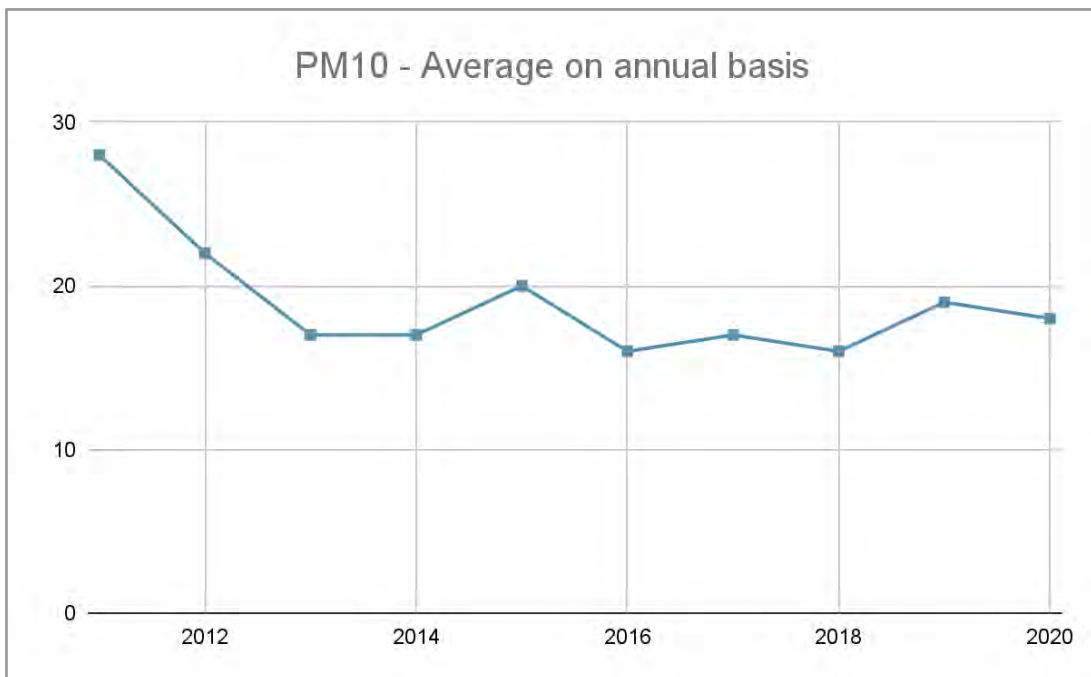


Figure 6. 6 (a). Average annual PM10. Source: ARPAT

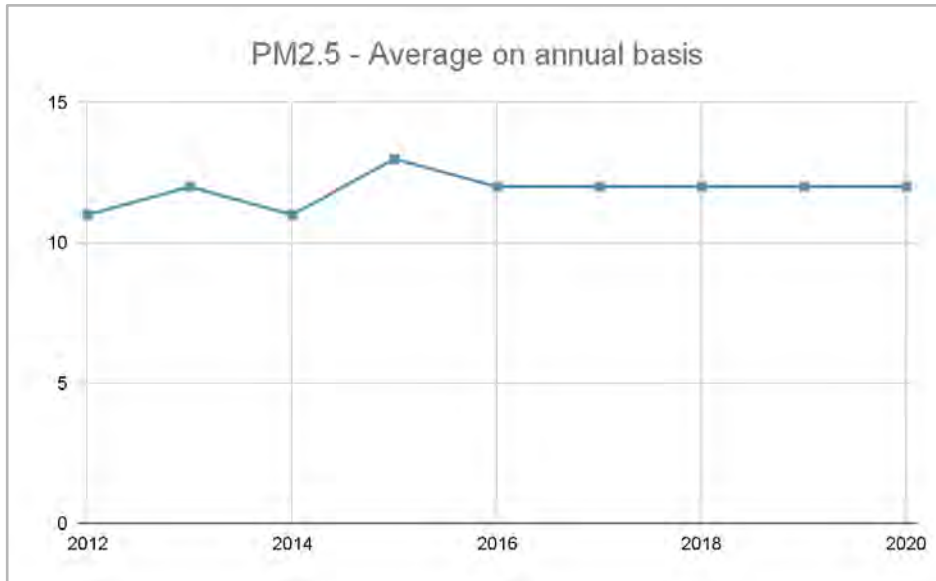


Figure 6. 6 (b). Average annual PM2.5. Source: ARPAT.

The Ecodynamics group (University of Siena) has developed an inventory of greenhouse gases (GHG) in the area of the Province of Siena. Thanks to the REGES 2008-2013 project, Siena has obtained, for the first time in the world, the ISO14064 certification (by the certifying institute RINA SpA) for the carbon emissions-absorption balance on a territorial scale.

The inventory of greenhouse gases was drawn up by the IPCC2006 (Intergovernmental Panel of Climate Change) guidelines, including the energy, industrial, agricultural, livestock, waste and forest management sectors.

Simultaneously with the start of the REGES project, in 2008, the Province of Siena, which had a local absorption capacity equal to 70% of emissions, launched the "Siena Carbon Free" political program, to achieve the balance of the carbon budget by 2015. The objective was achieved in advance thanks to a series of policies and good practices promoted and implemented by the provincial administration.

NBS contribute to the co-creation of multiple environmental and social benefits through the promotion of natural areas with the consequent increase in the ecosystem services that these areas spontaneously generate.

For this reason, they are of fundamental importance with respect to some "GOALS" of sustainable development. Specifically, those of the following image.



Figure 6. 7. Some objectives of the sustainable development of NBs. Source ASVIS website.

6.2.1.2. Biophysical characterization

The territory of the municipality of Siena is characterised by hills (neo-Quaternary basins), namely Crete (meaning clay), surrounded by sandy and stratified clay minerals, mainly covered by forest and arable land (mainly vineyards and olive trees). The Crete area draws one of the valuable landscapes of the entire region, with phenomena of extraordinary scenic and geological value, such as cliffs, gullies and Biancane.

Figure 6. 8 shows the dominant geological categories for the municipality of Siena. It is noted that the dominant category is the one called "Yellow sands and sandstone". Other elements present are Limestones and clays.

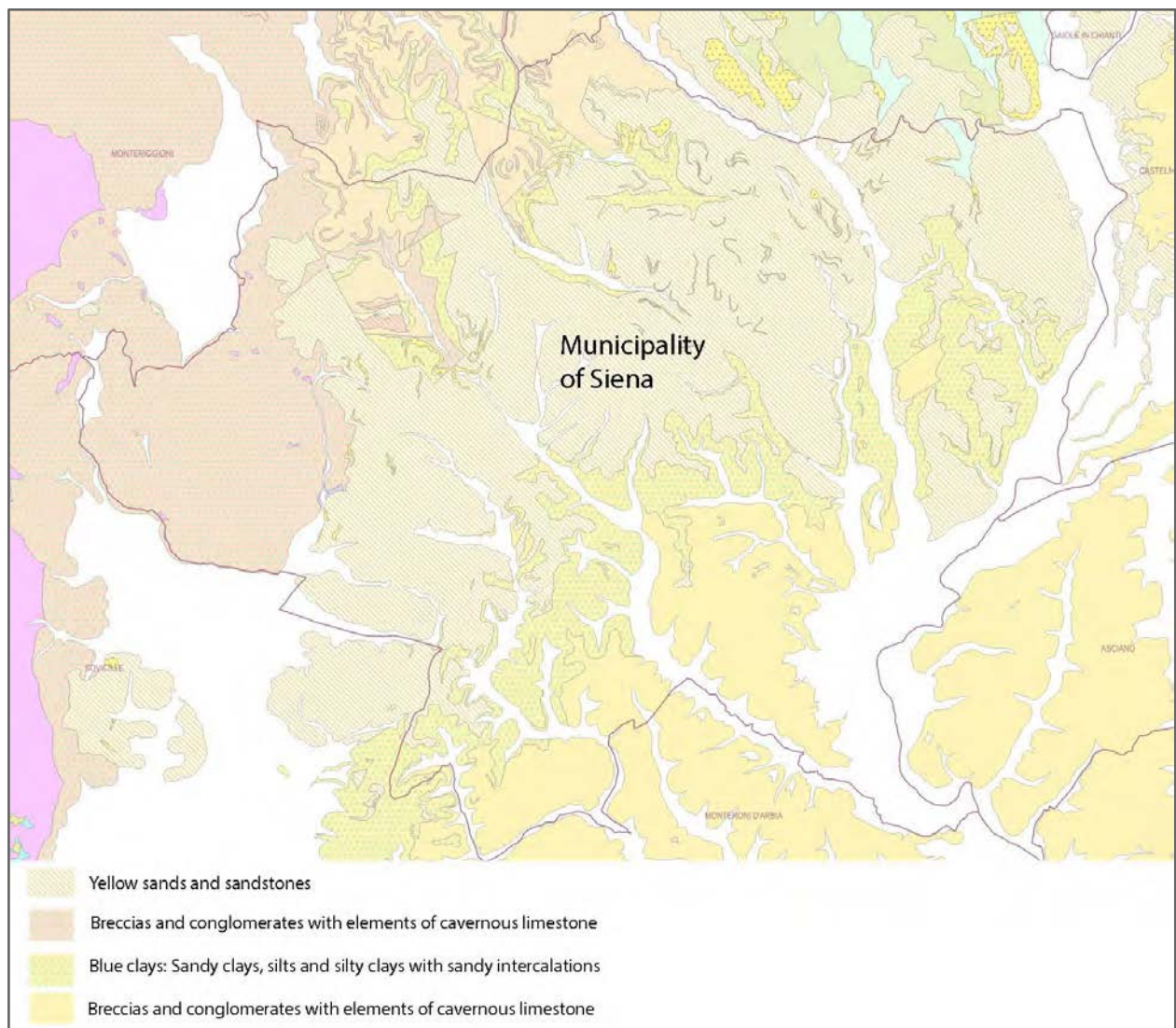


Figure 6. 8. Main geological formation in the municipality of Siena. Extract from the regional geology map. Source: Geoscopio SIT, Tuscany region.

The following figures show other biophysical characterizations. The Municipality of Siena has a minimum altitude of 148 m, a maximum of 798 m and an average of 295 m.

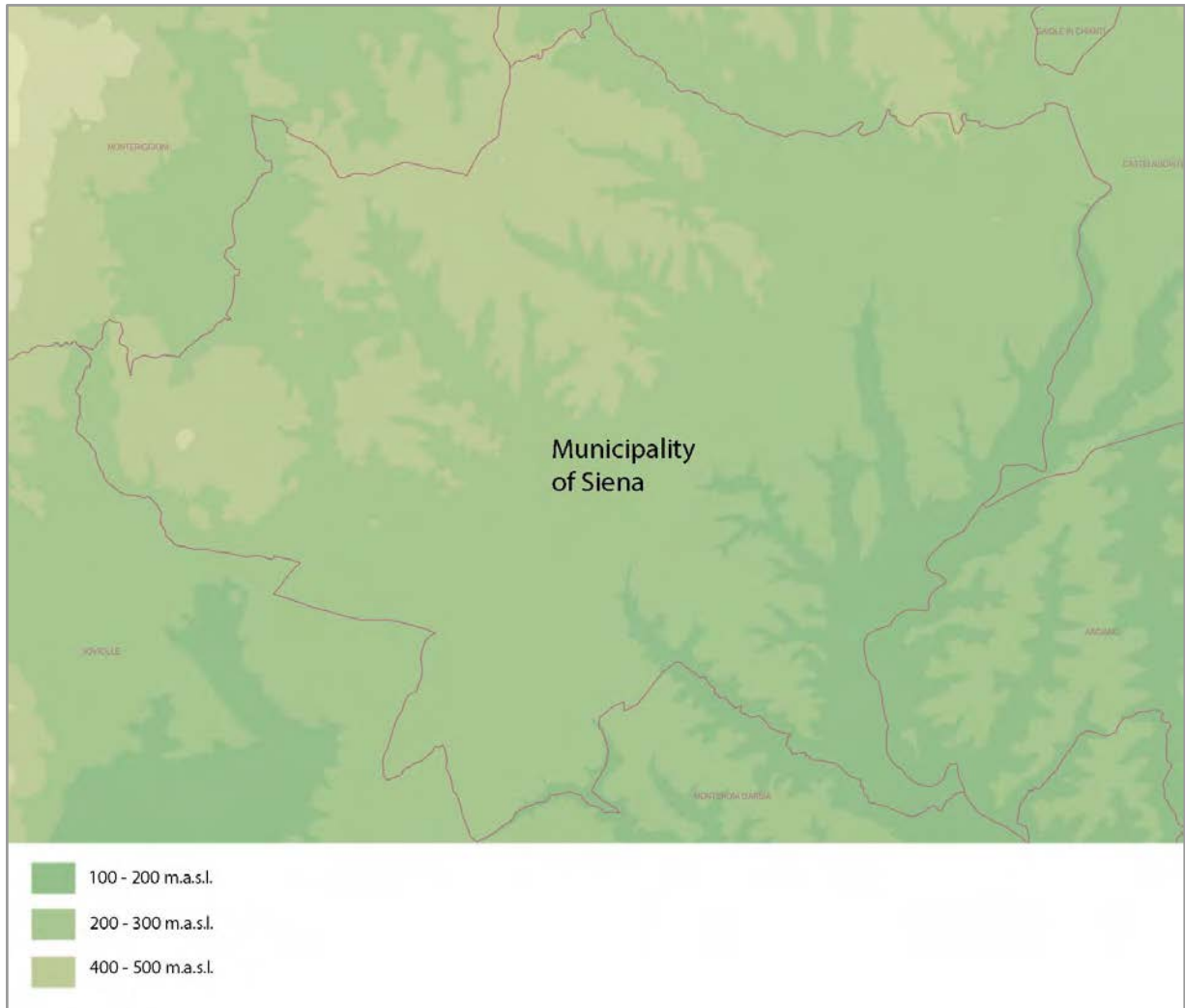


Figure 6. 9. Elevation map. Source: Geoscopio SIT, Tuscany region.

The Municipality of Siena is located between the valleys of the Arbia rivers to the south, Merse to the southwest and Elsa to the north. The whole territory falls within the catchment area of the Ombrone river, managed by the homonymous Basin Authority. The Basin Authority is an Italian public body for the management of hydraulic risk and soil protection.

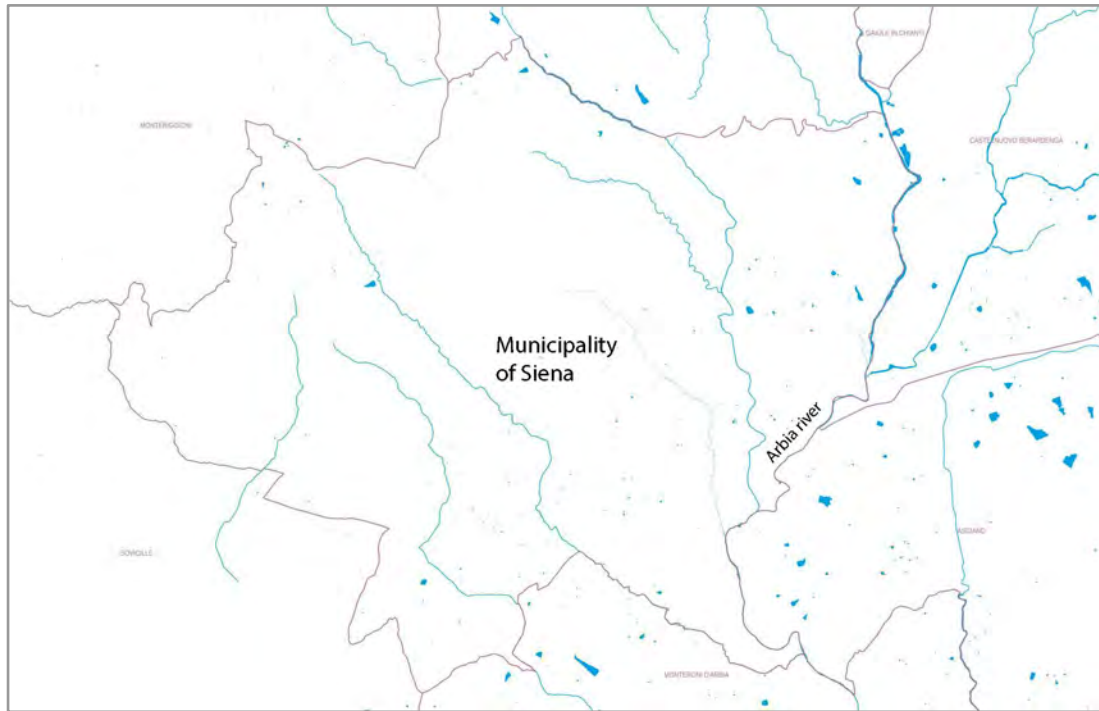


Figure 6. 10. Hydrographic map. Source: Geoscopio SIT, Tuscany region.

6.2.1.3. Land use/ land cover

Within the Municipality of Siena, system boundaries have been determined considering the peculiar character of the landscape of Siena given by a unique combination of built and natural environment. In particular, a consistent boundary for the city of Siena has been determined., Thanks to a master plan entered into force in 1956 (directed by Arch. Piccinato), a consistent area, including the medieval centre and a few historic settlements around, has been classified as no-building land. Unlike most Italian cities, this conservation area has not allowed any urban sprawl around the city since 1956 except for a few bordered settlements connected but separated from the historical city (Ravacciano is among these). More recently, the new master plan highlighted the role of the green area surrounding Siena as if it were an integral part of the urban system and established the *Buon governo* park in the southern side and the *Vico Alto* park in the northern. This area, which in some way represents the landscape context of Siena and its visual basin, hosts historic farming settlements, agricultural fields and natural lands; together with a cluster of small urban green areas, it has a crucial role in terms of ecosystem services and their further implementation through nature-based solutions.

Accordingly, Romano & Pulselli (2020 – unpublished) has traced coherent boundaries for the urban system in order to focus on the urban dimension of interventions without losing a comprehensive glance. These boundaries include both the *Buon Governo* and *Vico Alto* parks, following the trace of main infrastructures: highway (west – south), the commercial – industrial road Viale Europa (Est), administrative boundary of Vico Alto park (north - west).

The urban system has been described by the elaboration of GIS based maps in order to highlight peculiarities and characteristics of a coherent landscape unit, particularly focussing on the built

and the natural environment (natural is intended as a combination of natural and agricultural lands). Figure 10 shows the boundaries of the urban system within the Municipality of Siena.

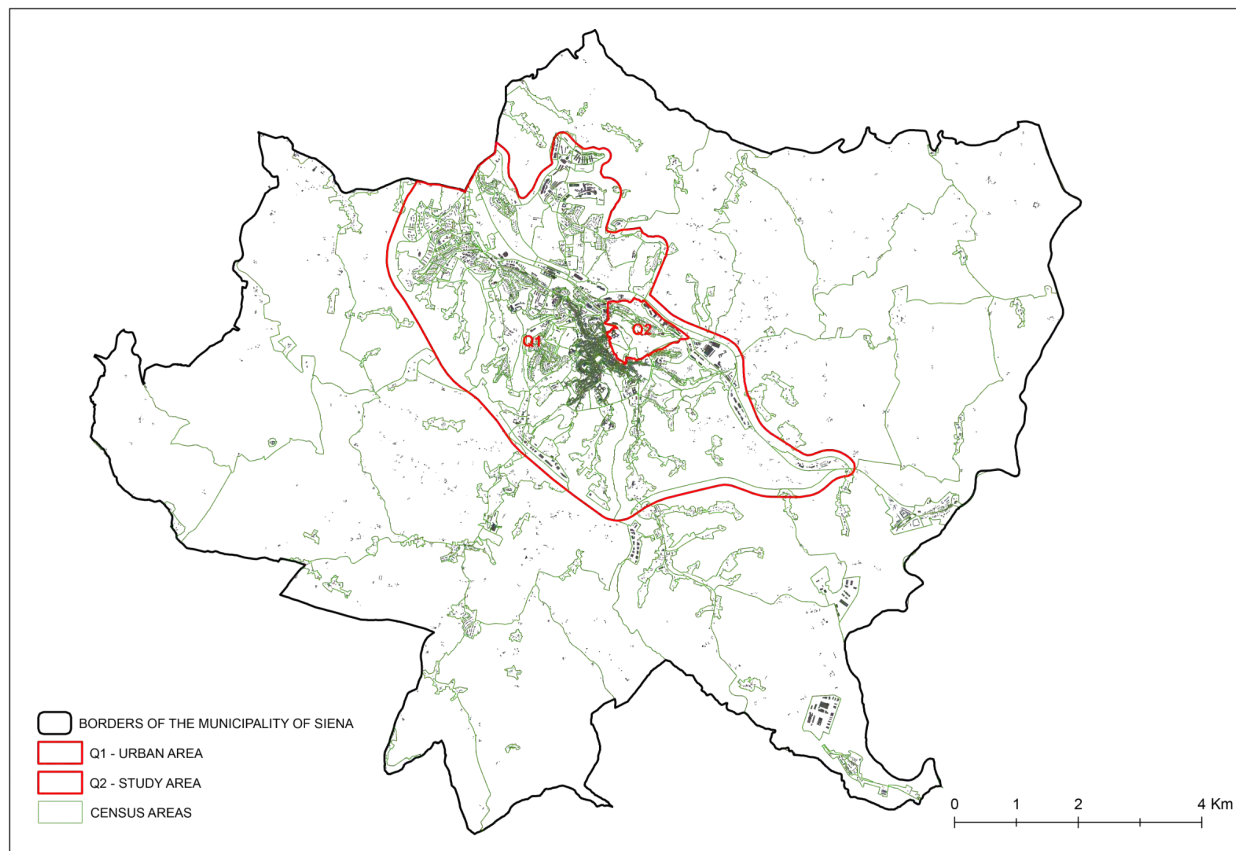


Figure 6. 11. Territorial system boundaries: Q - Municipality of Siena; Q1 - Siena urban system. Source: Pulselli & Romano (2020 – unpublished).

Figure 6. 11 shows at a glance the urban system (over 3500 ha) embedding both the built and the natural environment. The artificial area (almost 1200 ha, 34%) includes built surfaces and urban green areas and sport facilities. The other lands (over 2300 ha, 66%) include agriculture, forest and other ecosystems, and water bodies. The contour lines show the hilly morphology that clearly characterises the area and the wider region.

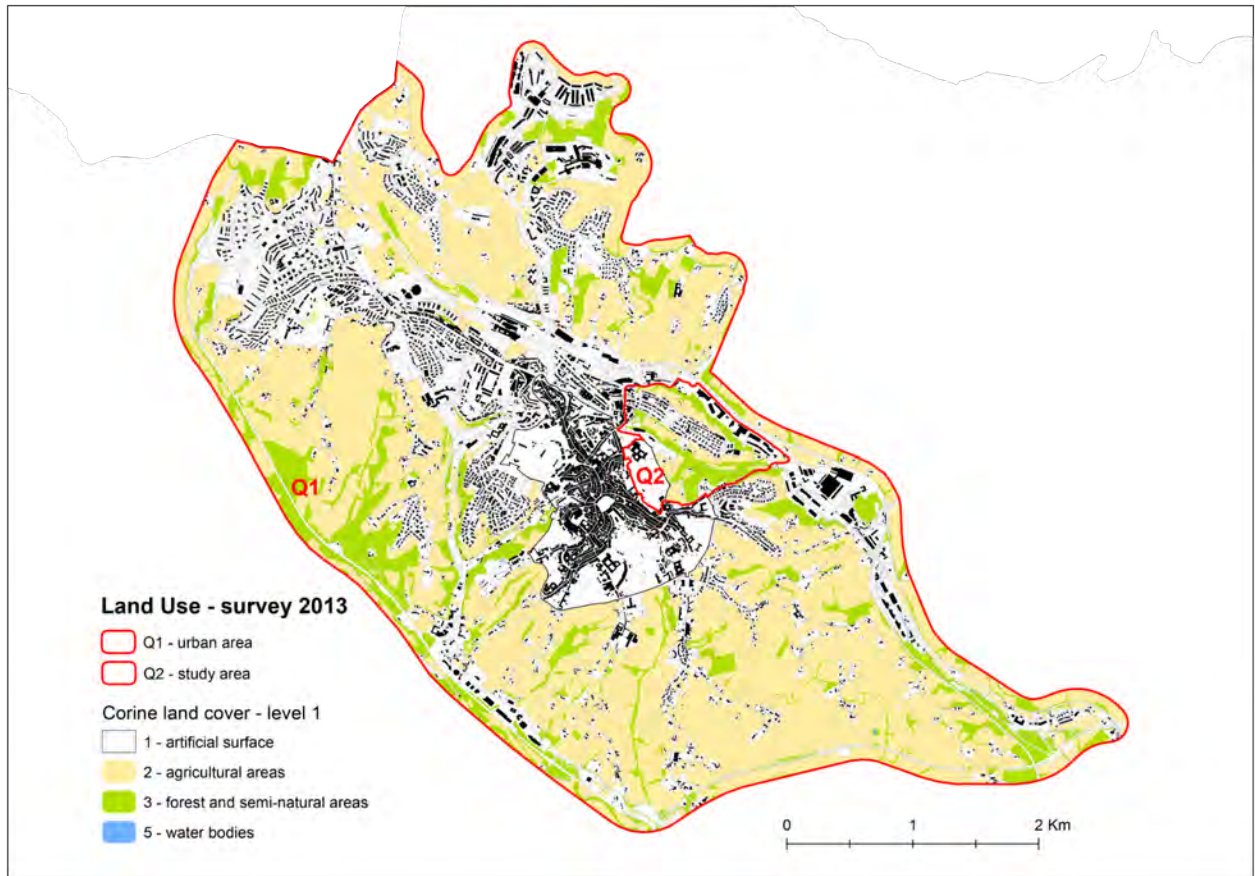


Figure 6. 12. Land use within the urban system of Siena. Source: Romano & Pulselli (2020 – unpublished).

Considering the census units within the urban system boundaries, this area hosts 43,800 people corresponding to 81% of the population of the Municipality of Siena, with a population density of 12.5 people/ha. The agricultural areas, including the *Buon Governo* and *Vico Alto* parks, are occupied by arable land (410 ha, 42%), olive trees (331 ha, 34%), vineyards (90 ha, 9%) and other cultivations (142 ha, 15%).

6.2.1.4. Transportation network (urban dynamics)

Siena station is at the junction of three railway lines of regional importance: Empoli-Siena, Siena-Chiusi, Siena-Grosseto. Due to the decentralized position in Tuscany, the ferry network presents a lack of electrified tracks. This condition makes it impossible for direct connections by trains to big cities outside the region (Bologna, Milan, Rome, Naples ...) and the passage of high-speed trains.

Outside the region, transport is provided by a number of private bus companies, which have set up a number of routes to the main Italian locations. Urban public transport network (managed by Tiemme Spa) has a total of 14 lines, which ensure connections between the centre, service centres and the urban districts. One bus line passes through the Ravacciano district. Tiemme Spa is also responsible for extra-urban bus connections, both in the province of Siena and to some Tuscan cities (Siena-Florence, Siena-Grosseto, Siena-Arezzo).

The following figure shows the transportation system hierarchy. The city of Siena is mainly connected by state roads and railways that connect the study area with Florence and Grosseto.

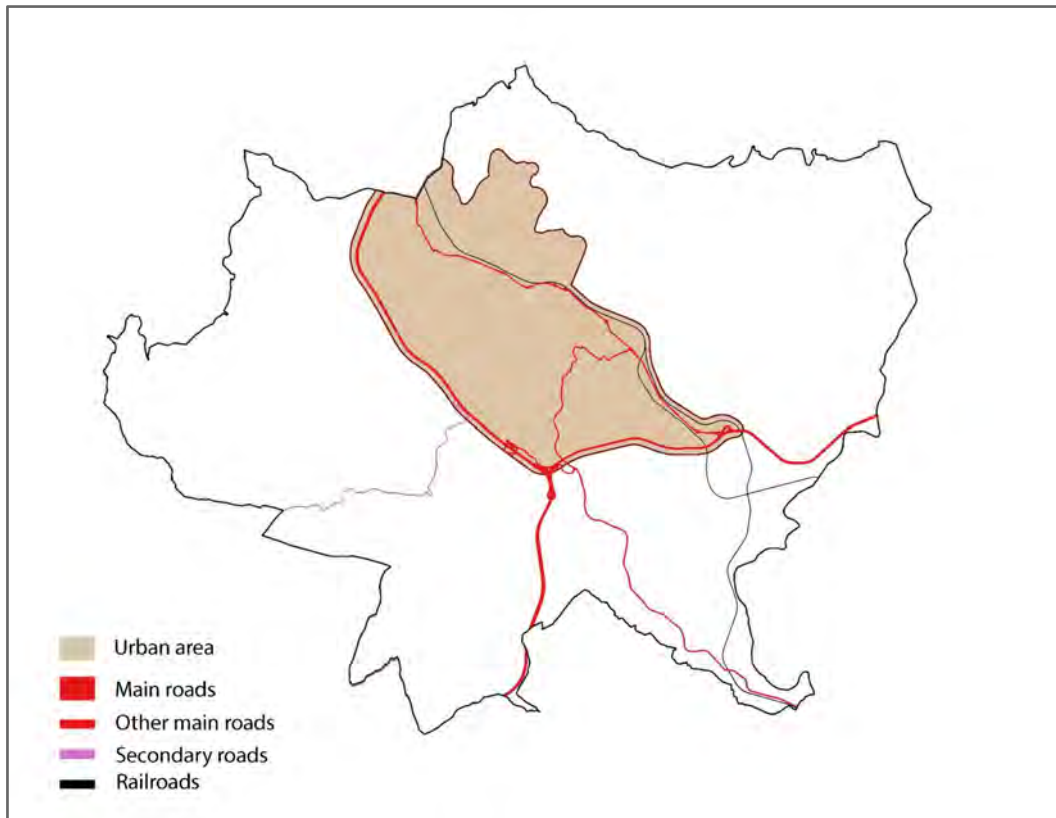


Figure 6. 13. Main transport system map. Source: Geoscopio SIT, Tuscany region

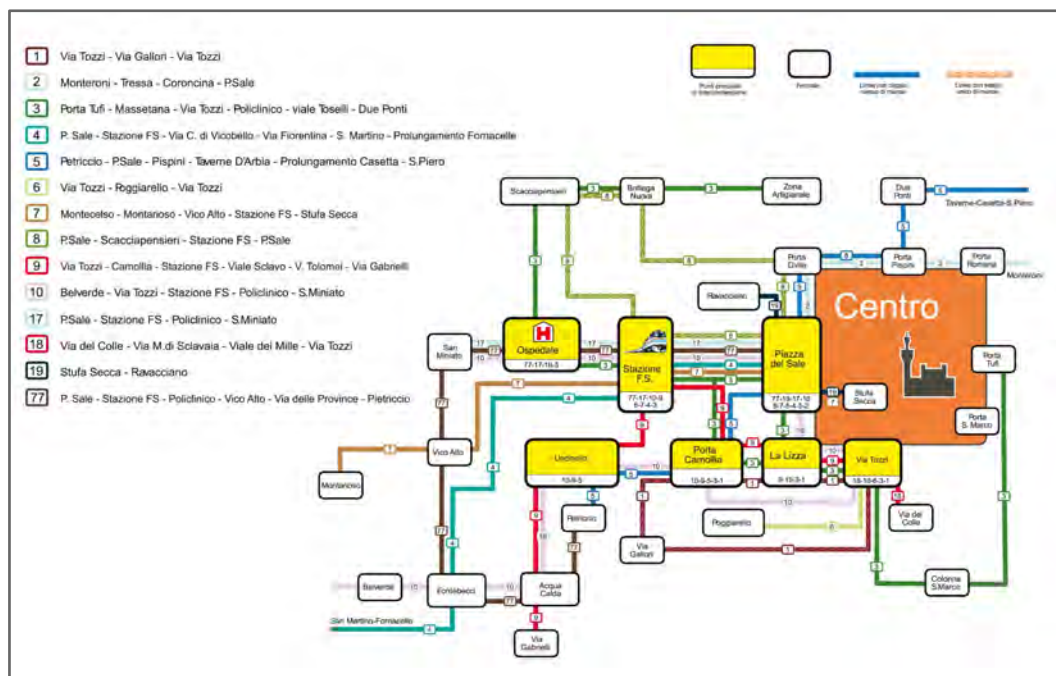


Figure 14. Siena public transport map

6.2.1.5. Green structure and Biodiversity

The municipality of Siena provides an interactive territorial information system (SIT) for consulting urban green areas. By selecting the area of interest, it is possible to acquire information on the parts into which it is divided and on all the objects (hedges, trees, games and furnishing elements) that are inside them. The next figure shows the set of all the green areas that can be selected.

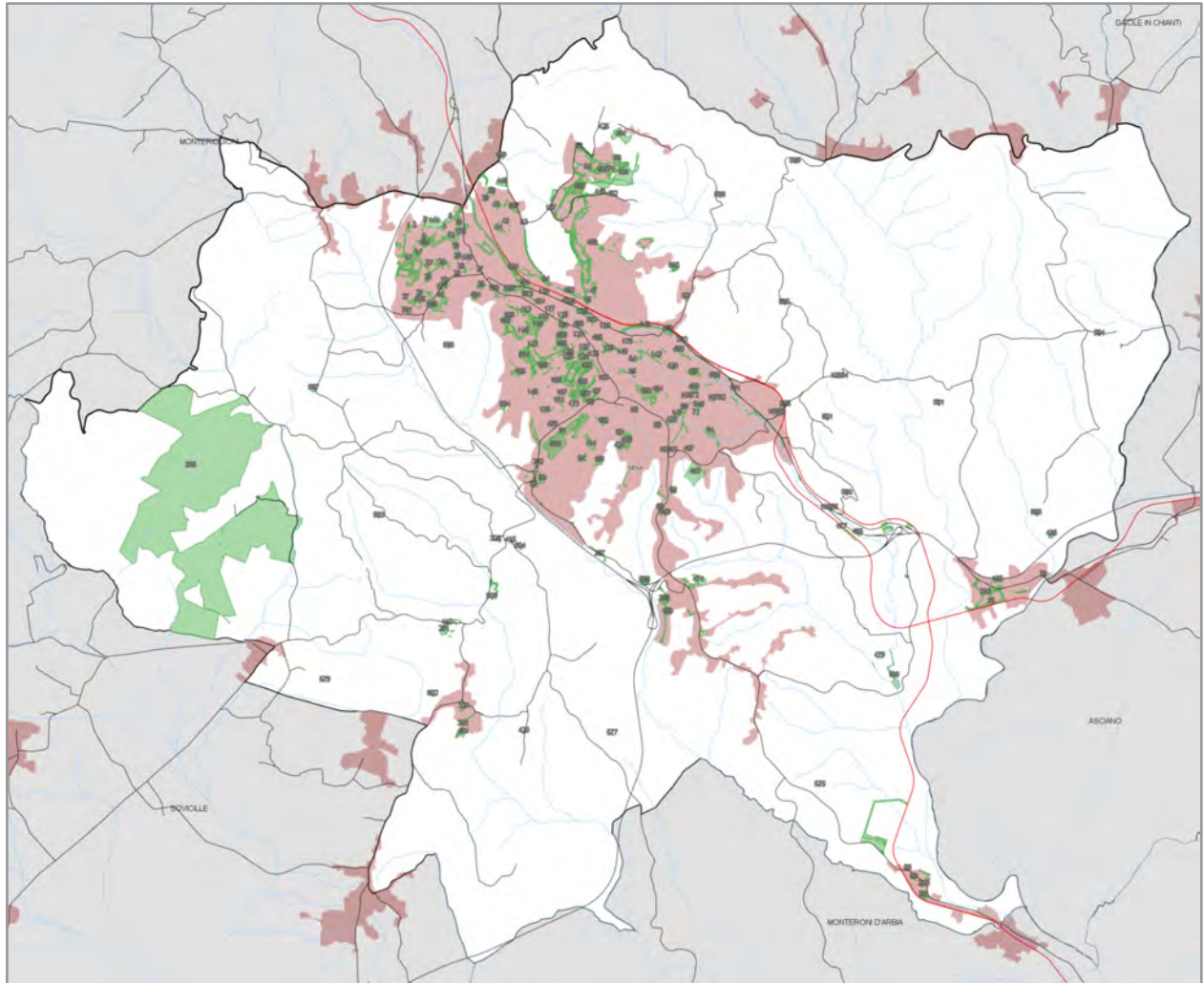


Figure 6. 15. Urban green areas in the municipality of Siena. Source: SIT of the municipality of Siena.

The following maps (figures 14 and 15), shows the distribution and type of green areas within the study area. Siena has a very green area, and it is estimated that the green valleys within the walls are 42% of the total park areas.

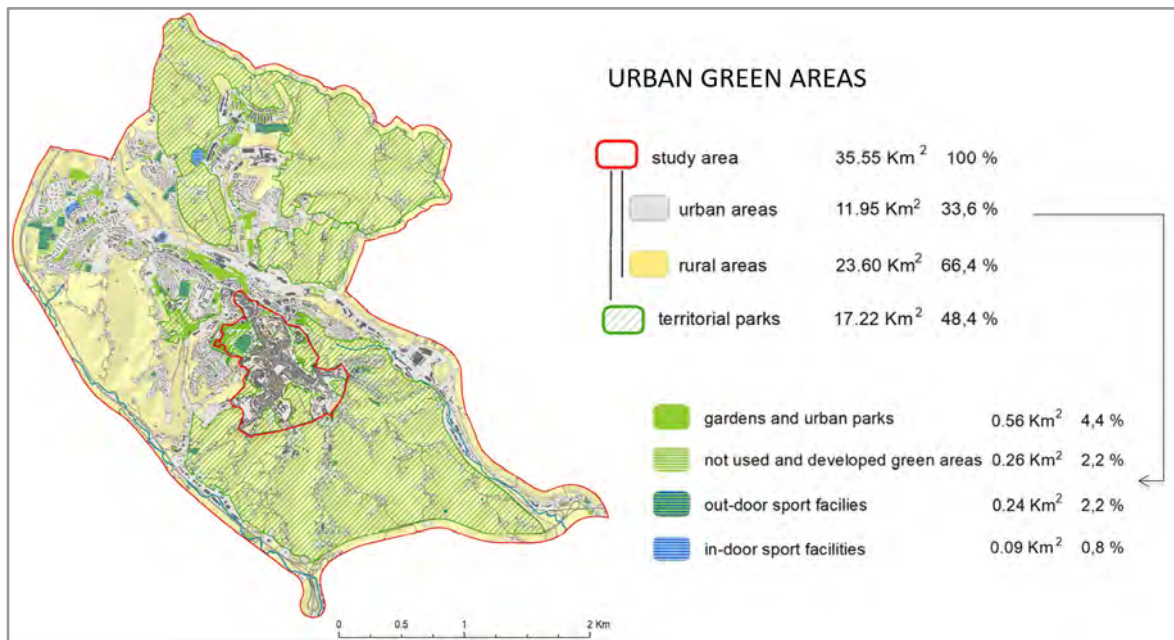


Figure 6. 16. Urban green areas. Source: Romano & Pulselli (2020 – unpublished).

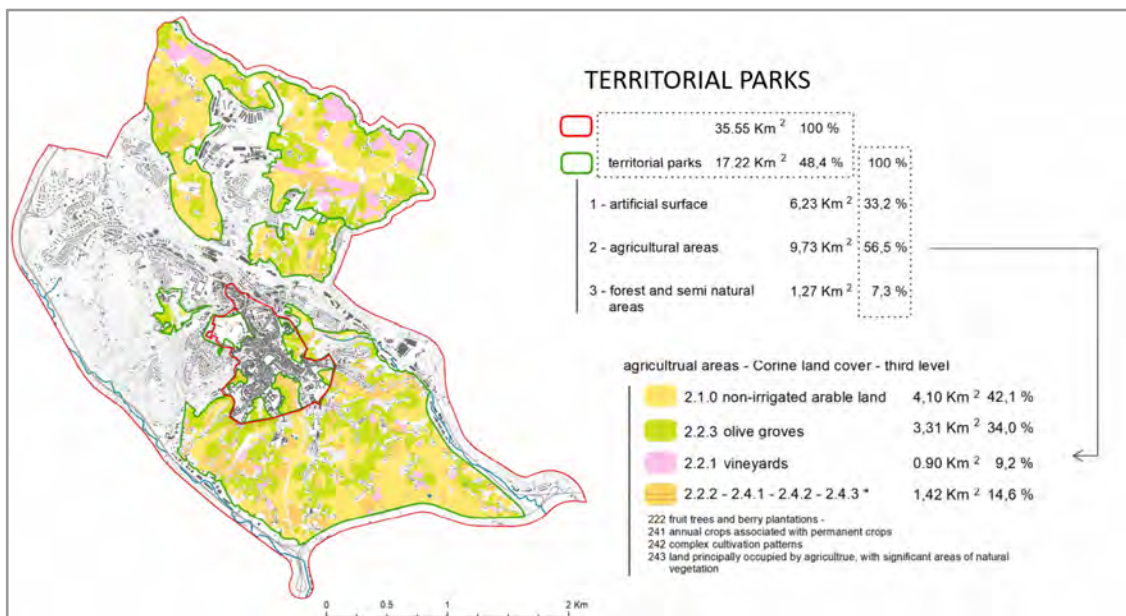


Figure 6. 17. Territorial parks. Source: Romano & Pulselli (2020 – unpublished).

6.2.1.6. Water management

The city of Siena, due to its hilly position and the lack of important waterways, had to resort to choices for the supply of drinking water.

The "Bottini" are a network of underground aqueducts that feed the historical sources scattered around the city. The system extends for about 25 km underground and was the only source of water supply in the city until 1914.



Figure 6. 18a. Two of the main branches of the Bottini. Source: Municipality of Siena's website.



Figure 18b. Fontebranda and Fontegaia. Source: From the book "Le fonti di Siena e i loro acquedotti, note storiche dalle origini fino al MDLV", 1906.

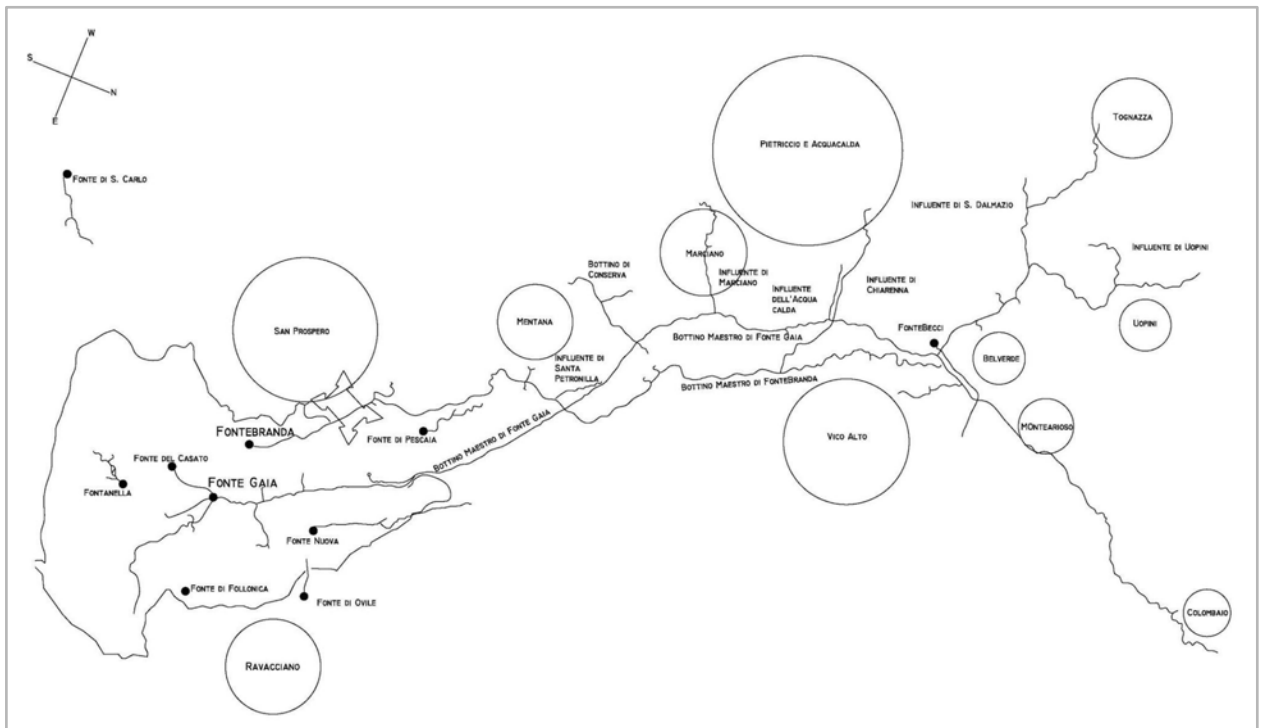


Figure 20. Bottini hydrographic network. Source: The book "Le fonti di Siena e i loro acquedotti, note storiche dalle origini fino al MDLV", 1906.

In addition to the historic Bottini network, the municipality of Siena is also served by the Aqueduct of Flora SpA. The network serves a total of 55 municipalities between Grosseto and Siena and manages both water supply and purification networks.

6.2.1.7. Other

Finally, the following table shows some interesting data on consumption for 8 years. The table shows:

- use of electricity;
- energy production;
- use of fuel;
- consumption for mobility, waste and water;
- land consumption.

Municipality of Siena	UNIT	2010	2011	2012	2013	2014	2015	2016	2017	2018
Electricity use										
Housing	MWh	103.889	105.350	102.223	98.173	106.657	105.426	104.128	103.275	102.123
Tertiary	MWh	87.923	89.159	86.513	83.085	90.266	89.244	88.125	87.403	86.429
Public lighting	MWh	22.664	22.983	22.301	21.417	23.268	23.000	22.716	22.530	22.279
Industry	MWh	31.962	32.412	31.450	30.204	32.814	32.435	32.036	31.773	31.419
Agriculture	MWh	16.835	17.072	16.565	15.909	17.283	17.084	16.874	16.735	16.549
TOTAL	MWh	263.274	266.875	259.051	248.788	270.288	267.169	263.879	261.717	258.799
Electricity production										
Electricity grid mix	MWh	252.916	254.173	247.276	237.010	257.772	254.433	251.076	248.502	246.138
Waste-to-energy	MWh	8.069	9.756	8.311	7.768	8.336	8.795	8.631	9.171	9.030
Geothermal energy	MWh	0	0	0	0	0	0	0	0	0
Landfill	MWh	1.597	1.855	1.475	1.595	1.764	1.480	1.693	1.362	1.149
PV	MWh	693	1.190	1.990	2.416	2.416	2.461	2.480	2.680	2.481
TOTAL	MWh	263.274	266.975	259.051	248.788	267.169	267.169	263.879	261.717	258.799
Fuel use										
Housing										
natural gas	t	24.747	22.013	22.463	22.779	28.307	29.306	28.155	28.311	28.951
diesel	t	1.278	976	1.229	1.180	970	942	908	1.487	1.418
LGP	t	2.480	1.933	1.835	1.724	2.156	2.718	2.150	2.256	2.461
Industry										
natural gas	t	2.074	2.150	2.055	2.122	2.637	2.730	2.622	2.622	2.697
diesel	t	0	0	0	118	20	258	280	11	59

oil	t	125	8	0	0	196	203	204	228	195
lubrificantes	t	417	424	395	374	339	379	373	365	263
Agriculture										
diesel	t	1.173	1.299	1.259	1.318	1.236	1.211	1.139	913	905

Municipality of Siena	UNIT	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mobility										
Transport people&goods										
diesel	t	24.433	24.553	21.838	21.089	20.732	21.002	21.960	24.136	24.663
gasoline	t	9.202	8.888	7.642	7.365	7.003	7.051	6.764	6.748	6.624
LGP	t	1.334	1.244	1.470	1.540	796	870	833	900	923
Waste										
Waste	t	38.346	36.453	26.847	28.463	30.589	27.914	30.197	28.816	26.369
waste-to-energy	t	12.452	12.954	11.963	11.454	13.240	12.540	14.018	13.452	12.871
landfill	t	20.585	19.169	10.568	12.429	12.297	10.823	11.442	11.260	8.913
compost	t	5.309	4.329	4.316	4.581	5.052	4.550	4.737	4.104	4.585
differentiated waste	%	41.17	41.70	40.63	40.81	40.41	39.45	39.54	40.25	40.64
	t	23.120	22.979	15.421	16.467	17.319	15.219	16.654	16.649	14.915
undifferentiated waste	%	58.83	58.30	59	59.19	59.59	60.55	60.46	59.75	59.36
TOTAL WASTE	t	56.157	55.103	37.952	40.350	42.856	38.583	42.155	41.361	36.699
Water use										
Housing (wastewater)	Inhab _{eq}	96.991	91.706	91.761	94.295	82.915	83.776	85.222	82.320	76.801
	m ³	7.080.366	6.694.570	6.698.539	6.883.545	6.052.819	6.115.658	6.221.220	6.009.329	5.606.450
Soil use										
Forests	ha	2.776,95	2.776,95	2.776,95	2.772,84	2.772,84	2.772,84	2.750,72	2.750,72	2.750,72
Fruit trees	ha	107,26	107,26	107,26	111,26	111,26	111,26	111,12	112,12	112,12
Vineyards	ha	476,15	476,15	476,15	462,20	462,20	462,20	449,82	449,82	449,82
Olive trees	ha	1.196,72	1.196,72	1.196,72	1.194,93	1.194,93	1.194,93	1.198,52	1.198,52	1.198,52
TOTAL	ha	1.780,13	1.780,13	1.780,13	1.768,38	1.768,38	1.768,38	1.760,46	1.760,46	1.760,46
Urban green areas	ha	141,86	141,86	141,86	146,54	152,70	152,70	152,70	153,46	153,51

Table 6. 3. Municipality of Siena. A selection of data in time series (Source: REGES 2020 – Ecodynamics Group, University of Siena).

6.2.2. Social description

Siena represents one of the archetypes of the medieval city, spread over three hills connected by three main roads and surrounded by fortified walls, which still encircle a site of 170 hectares.

A medieval city, known throughout the world for its architectural beauty and which has preserved its characteristics over the centuries. For this reason, and for its importance in the history of art, Siena was inscribed on the UNESCO World Heritage List in 1995.

The quality of life is maintained at high levels (11th place in the 2020 Il Sole 24 Ore quality of life ranking), increasing compared to previous years, particularly in relation to environmental quality indicators and those relating to culture and leisure. The high quality of life and life expectancy is also linked to low population density (69,681 - inhabitants/sqm in the entire province - source: ISTAT) and a consequent distribution and wealth of services. However, we find a negative natural demographic balance with an evident ageing of the population, mitigated by the presence of migratory flows.

6.2.2.1. Demography

Data on age and gender of the population show that females are almost 54% of residents. Moreover, almost 15% are under 18 years old (8382), 35% are over 18 and under 50 (18739), 27% are over 50 and under 70 (14838) and the over 70 are more than 22% (11963). The average age in the Municipality of Siena in 2019 is 48.1 years, more than the national average of 44.9.

Age	M	F	Total	% age	M	F	age	% age
0-4	853	923	1776	3.3	48.0	52.0	8382	15.5
5-9	1094	1005	2099	3.9	52.1	47.9		
10-14	1174	1123	2297	4.3	51.1	48.9		
15-19	1161	1049	2210	4.1	52.5	47.5		
20-24	1287	1109	2396	4.4	53.7	46.3		
25-29	1475	1392	2867	5.3	51.4	48.6		
30-34	1445	1480	2925	5.4	49.4	50.6		
35-39	1474	1556	3030	5.6	48.6	51.4		
40-44	1626	1848	3474	6.4	46.8	53.2		
45-49	1884	2163	4047	7.5	46.6	53.4		

50-54	2003	2310	4313	8.0	46.4	53.6	14838	27.5
55-59	1743	2181	3924	7.3	44.4	55.6		
60-64	1589	1917	3506	6.5	45.3	54.7		
65-69	1346	1749	3095	5.7	43.5	56.5		
70-74	1527	1859	3386	6.3	45.1	54.9	11963	22.2
75-79	1252	1678	2930	5.4	42.7	57.3		
80-84	1103	1571	2674	5.0	41.2	58.8		
85-89	637	1121	1758	3.3	36.2	63.8		
90+	313	902	1215	2.3	25.8	74.2		
TOTAL	24986	28936	53922	100	46.3	53.7		

Table 6. 4. Municipality of Siena - population age and gender. Source: Statistical office of the Municipality of Siena (2019).

The following tables show more detailed information on the urban demography per urban neighbourhood. Data for this more detailed elaboration per urban neighbourhood refer to statistical reports released by the Municipality of Siena in 2010 and 2016.

Urban Areas	Gender		Total	% total
	Male	Female		
Centro storico	4657	5820	10477	19,48
Torre Fiorentina	1280	1504	2784	5,18
S. Prospero	1002	1324	2326	4,33
Taverne d'Arbia	1070	1198	2268	4,22
San Miniato	989	1208	2197	4,09
Acquacalda	833	1043	1876	3,49
Scacciapensieri	875	953	1828	3,40
Petriccio	784	911	1695	3,15
Vico Alto	696	812	1508	2,80
Ravacciano	608	773	1381	2,57
Valli	618	753	1371	2,55
Isola d'Arbia	522	542	1064	1,98

Poggiarello	462	561	1023	1,90
S. Andrea	378	425	803	1,49
Costalpino	315	396	711	1,32
Derna	190	202	392	0,73
Fontebenedetta	131	136	267	0,50
Stellino	92	144	236	0,44
S. Martino	106	101	207	0,38
S. Rocco	64	66	130	0,24
Volte Basse	26	33	59	0,11
S. Giovanni	3	4	7	0,01
Other aggregated areas	9070	10092	19162	35,64
TOTAL	24771	29001	53772	100

Table 6. 5. Municipality of Siena - population gender per neighbourhood. Source: Statistical office of Municipality of Siena (2016).

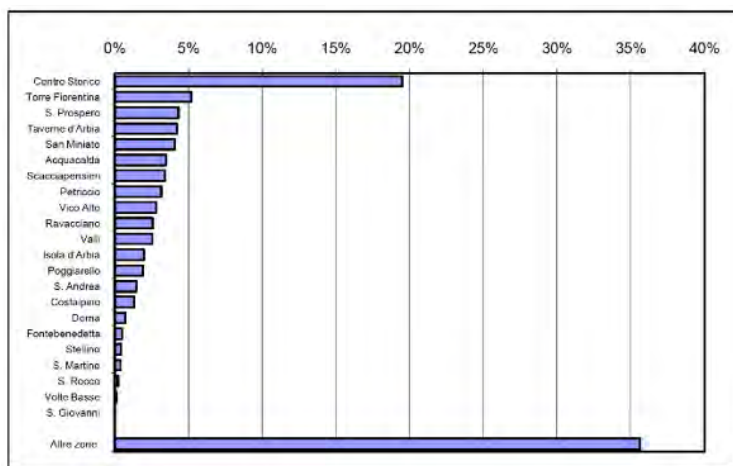


Figure 6. 19-down. Municipality of Siena - population share in urban neighbourhoods. Source: Statistical office of Municipality of Siena (2016).

URBAN AREAS	In family pop.			Cohabiting pop.			Total pop.			% tot
	Gender		Tot. M+F	Gender		Tot. M+F	Gender		Tot. M+F	
	M	F		M	F		M	F		
Acquacalda	906	1077	1983	0	2	2	906	1079	1985	3,64
Costalpino	315	395	710	4	6	10	319	401	720	1,32
Centro Storico	4782	5815	10597	120	379	499	4902	6194	11096	20,34
Derna	193	207	400	0	0	0	193	207	400	0,73
Fontebenedetta	124	132	256	0	0	0	124	132	256	0,47
Isola d'Arbia	520	531	1051	0	0	0	520	531	1051	1,93
San Miniato	1098	1238	2336	0	2	2	1098	1240	2338	4,29
Petriccio	830	950	1780	0	0	0	830	950	1780	3,26
Poggiarello	435	523	958	0	0	0	435	523	958	1,76
Ravacciano	614	785	1399	0	0	0	614	785	1399	2,56
S. Andrea	357	431	788	0	0	0	357	431	788	1,44
Scacciapensieri	884	930	1814	19	0	19	903	930	1833	3,36
S. Giovanni	3	3	6	0	0	0	3	3	6	0,01
S. Martino	108	105	213	0	0	0	108	105	213	0,39
S. Prospero	1042	1322	2364	0	0	0	1042	1322	2364	4,33
S. Rocco	68	68	136	0	0	0	68	68	136	0,25
Stellino	93	100	193	0	51	51	93	151	244	0,45
Taverne d'Arbia	1165	1261	2426	0	0	0	1165	1261	2426	4,45
Torre Fiorentina	1289	1587	2876	0	0	0	1289	1587	2876	5,27
Valli	564	661	1225	25	93	118	589	754	1343	2,46
Volte Basse	25	29	54	0	0	0	25	29	54	0,10
Vico Alto	719	844	1563	0	0	0	719	844	1563	2,87
Other aggregate	8648	9828	18476	0	0	0	719	844	1563	2,87
TOTAL	24782	28822	53604	339	600	939	25121	29422	54543	100

Table 6. 6. Municipality of Siena - population gender and composition per family per neighbourhood. Source: Statistical office of the Municipality of Siena (2010).

The educational pathways from primary to upper secondary school are sufficient to cover the population's needs. Table 7 shows the data relating to education in the municipality of Siena divided by quantity, school order and by enrolment.

As regards university education, there is an important and qualified university system, with two prestigious universities (the University of Siena and the University for Foreigners) of international

standing, which boast an excellent ability to attract students. In addition, there is a training centre in the field of music with the Chigiana Academy, Siena Jazz and the Rinaldo Franci Institute.

Year	2019					
	School			Subscribers		
Data type	public	private	total	public	private	total
School management						
School order						
Childhood	80	21	101	5387	860	6247
Primary	65	3	68	10978	294	11272
Secondary grade I	43	1	44	6995	56	7051
Secondary grade II	26	1	27	11640	65	11705

Table 6. 7. Municipality of Siena - Type of schools per orders and the number of subscribers. Source: ISTAT (2019).

The annual ranking of Il Sole 24/ 2020 places Siena in 5th place for Culture and Leisure. The indicators examined (for the entire province of Siena) concern the number of events, cultural offerings, sports centres, libraries, bookshops... in relation to the number of inhabitants (see image). In the Municipality of Siena alone there are approximately **60 sports associations and 15 municipally owned sports facilities**.



Figure 21-Province of Siena. Indicators on culture and leisure -Source: Sole 24 Ore/ISTAT (2020).

There are also **more than 100 cultural associations** operating in the context of the city (theatre, music, dance, figurative arts, etc.). There is a solid cultural and artistic offer both in terms of

museum facilities and number of events, even if there is little ability to generate revenue through the organisation of numerous small/medium sized events.

(Source: SIAE <https://www.siae.it/it/chi-siamo/lo-spettacolo-cifre/losservatorio-dello-spettacolo>)

3.2.2. Safety and health

On the Italian territory, the surveys of the "Sole 24 ore" focus on well-being in the territories. In 2020, in addition to analysing the traditional 90 indicators, an attempt was made to tell how the coronavirus pandemic has impacted the territories in a different way.

The final ranking of all Italy sees the **province of Siena rank 11th** with a **final score of 540.6** and win as the territory in Tuscany with the highest quality of life.

Table 6. 8 shows the statistics on the causes of death, an important indicator for defining the state of local health. The aggregate data, for male and female, refers to the year 2018 of ISTAT and is categorized according to the type of fatal disease.

Year	2018		
Data type	Deaths	Mortality rate (per 10.000 ab.)	Standardized mortality rate (per 10.000 ab.)
Initial cause of death			
Some infectious and parasitic diseases	89	3,33	
Tumors	859	32,1	
Diseases of the blood and hematopoietic organs and some disorders of the immune system	18	0,67	
Endocrine, nutritional and metabolic diseases	168	6,28	
Psychic and behavioral disorders	116	4,33	
Diseases of the nervous system and sense organs	139	5,19	
Diseases of the circulatory	1164	43,5	
Respiratory system diseases	261	9,75	
Diseases of the digestive system	94	3,51	
Diseases of the skin and subcutaneous tissue	7	0,26	
Diseases of the musculoskeletal system and connective tissue	21	0,78	
Diseases of the genitourinary system	81	3,03	
Some morbid conditions that originate in the perinatal period	1	0,04	
Congenital malformations and chromosomal anomalies	6	0,22	
Symptoms, signs, abnormal results and ill-defined causes	117	4,37	
External causes of trauma and poisoning	124	4,63	
TOTAL	3265	122,01	76,85

Table 6. 8. Municipality of Siena - Type of death in municipality of Siena and mortality rate per 10,000 ab. Source: ISTAT (2018).

Figure 6. 21 shows some parameters relating to crime in the province of Siena (rank 63).



Figure 6. 22. Province of Siena - Type of criminality in Province of Siena per 100,000 ab. Source: Sole 24 Ore/ISTAT (2020).

6.2.2.3. Participation

Participation in the political life of sienese citizens has traditionally been very high. In the **last general election (2018)**, there was a **78.76% attendance** (Ministry of the Interior data). At the **2020 regional elections**, the percentage of voters was **64.85%**. The **last municipal elections (2018)** saw a turnout of **63.08%** in the **first round** and **56.19% in the second round**.

The world of volunteering and associations in the city is represented by a variety of organisations working in the social and health fields, but also in environmental protection, cultural development and international cooperation. The Portal of the Third Sector (<http://terzosettore.comune.siena.it/>) counts 88 residents in the Municipality of Siena, 63 of which are associations that deal primarily with social and health activities.

Siena, unlike other cities, has an absolutely peculiar social fabric. The city is divided into 'Contrade': organisations born with primarily social functions, which are still maintained today because the spirit of belonging, and sharing is still very strong. They were born from the mutual aid societies of the mid-nineteenth century, with the aim of improving the material and moral conditions of the poorest sections of the population, through a new form of mutual solidarity that went beyond the

concept of traditional charity.

There are currently 17 Contrade in Siena, real communities whose members (contradaioi) provide for the maintenance of the Contrade through voluntary work. This volunteering involves taking on ongoing commitments and responsibilities aimed at the smooth running of the common interests. The glue of this community is the sense of belonging and identity towards its flag, its colours and the symbol it carries. The 17 Contrade divide the historic city into districts and each year give life to the famous Palio: a historic horse race in the famous Piazza del Campo, in the heart of Siena.

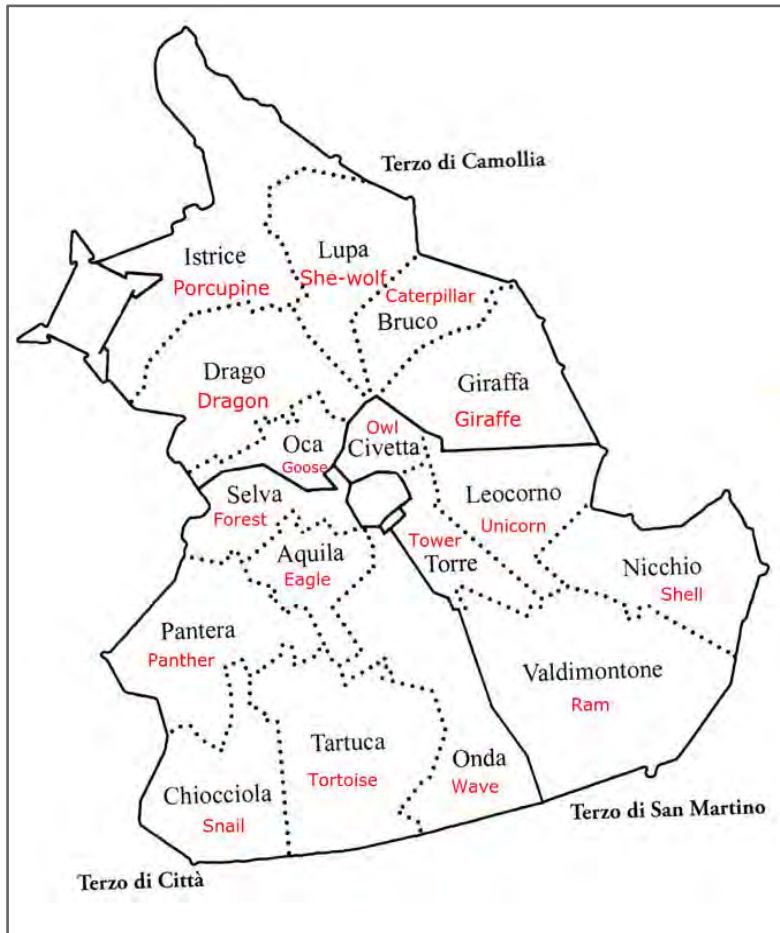


Figure 23. City map of the Contrade.

6.2.2.4. Public services

The figure shows the status of some types of mobility in the study area including cycle paths, buses, trains, stations, cycle stations and car parks.

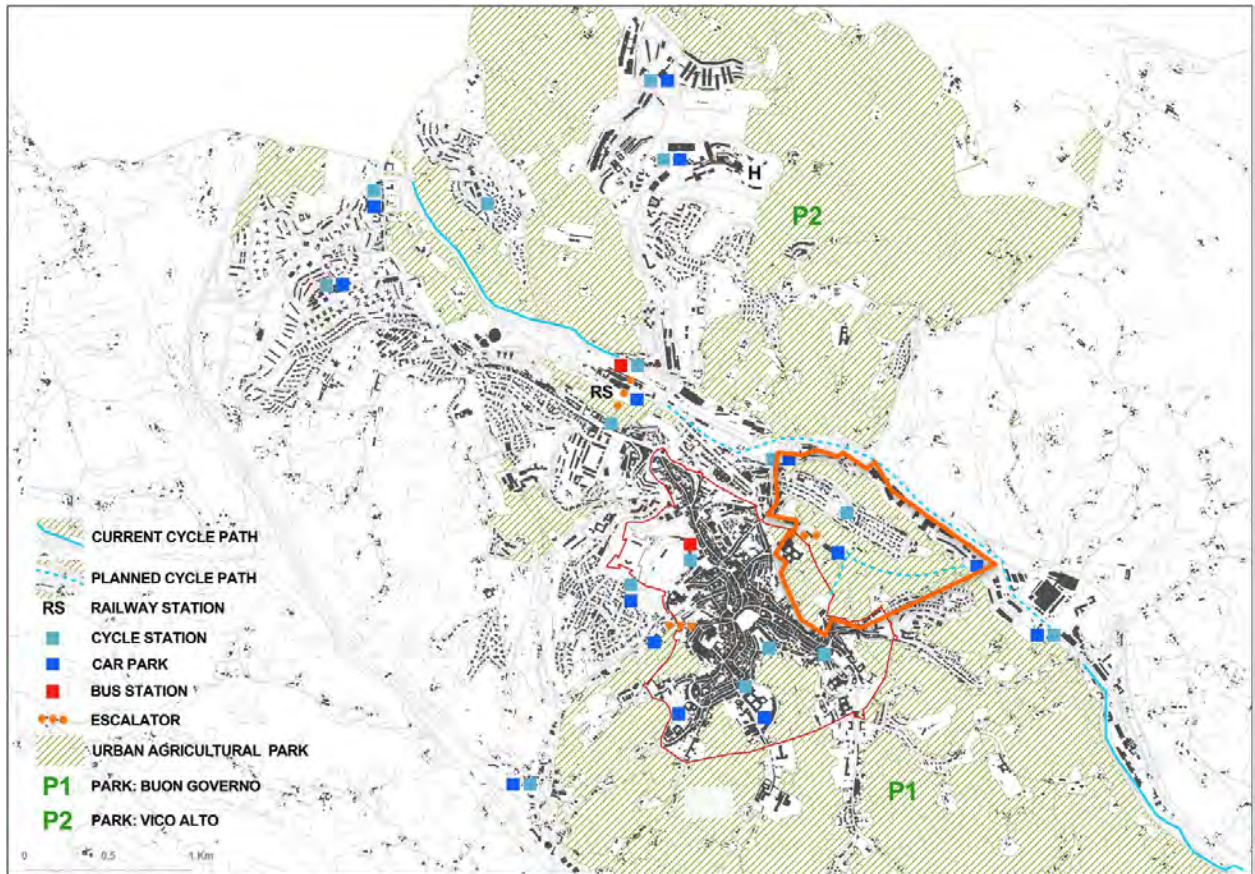


Figure 6. 24. Alternative mobility map in study areas. Source: Romano & Pulselli (2020 – unpublished).

The next table lists the schools, divided by grade, present in the territory of the municipality of Siena.

Type of school	Number	Age
childhood nests	7	≤ 3 yr
kindergartens	8	3 - 5 yr
primary schools	8	6 - 10 yr
secondary schools	6	11 - 13 yr
high school	6	14 - 18 yr
university	2	+ 18 yr

Table 6. 9. Type of schools in the municipality of Siena. Source: Municipality and Supervisor of Siena websites.

Type of health service	Number
university hospital (Le Scotte)	1
A.S.L. (Local health services)	4

Table 6. 10. Type of health services in the municipality of Siena. Source: Municipality of Siena website.

Type of public security	Number of offices
municipal police	2
carabinieri	4
state police	1
fire department	1

Table 6. 11. Type of public security offices in the municipality of Siena. Source: Municipality of Siena website.

Type of cultural services	Number
museum structures	6
churches and chapels	21
municipal theaters	2

Table 6. 12. Type of cultural services in the municipality of Siena. Source: Municipality of Siena website.

6.2.3 Economic description

The main activities in the Sienese territory are tourism, services, agriculture, craftsmanship, and light industry. Approximately three quarters of the provincial added value (72%) is produced by the vast tertiary sector, which, in addition to services in the strict sense of the word, also includes commerce and catering and tourism activities. 19% of the remaining quarter is represented by industry, 5% by agriculture, and 4% by construction. (Source: Chamber of Commerce elaborations on Prometeia data - "Scenari economie locali", April 2021) While it is true that the industrial sector is not very developed, there are important realities especially in the pharmaceutical sector: the historical Serotherapy Institute *Achille Sclavo*, acquired in 2015 by GSK, after several changes of ownership, but also a series of small related activities: instrumentation, services, special transport. In parallel, the biotechnology industry is being developed, supported by mixed initiatives between the public and private sectors. This is strongly supporting and developing scientific research both in universities and in private industries and activities. The pharmaceutical industry accounts for 97.5% of the Province of Siena's hi-tech exports (2017 data) with more than 2.200 employees, and is an important research and production centre for vaccines exported all over the world. The creation of an infrastructure network is trying to develop a highly qualified and competitive sector, integrating it in an "ecological" way in an area known for its natural and man-made landscape. An attempt is therefore being made to steer the city's new development in "sustainable" directions by means of public investment.

It is in the tertiary sector that we find the most widespread activities, including those linked to the Monte dei Paschi di Siena bank, but also to the presence of the University of Siena and the hospital, which employ thousands of people and serve a catchment area much wider than the already large provincial territory. In the area there is a dense network of micro-enterprises (just under ten thousand) active in commerce and tourism, and it is precisely tourism that is a key element for development and employment in the province. In 2020, in the province, the greatest losses were suffered by agriculture (-5.5%) and above all by the tertiary sector (-7.7%), which, in addition to services in the strict sense of the word, also includes commerce and catering and tourism. It

represents 72% of the total added value of the province of Siena. The remaining quarter is represented by industry (19%), agriculture (5%), and construction (4%).

In the services sector, public establishments and tourism activities suffered the most due to restrictions and the blockage of travel, particularly from abroad. Provisional figures for 2021 indicate a growth in arrivals of +29% and in presences of +36%, compared to the first six months of 2020. A positive and very interesting parameter is exports, which will grow by 9.4% in 2020. This growth has affected all the main productions: Camper (+103.8%), Pharmaceuticals (+59.7%) and Wine (+43.6%). (Source- L'ECONOMIA DELLA PROVINCIA DI SIENA- Annual report 2021, Chamber of Commerce Siena-Arezzo)

6.2.3.1. Income and poverty

Data concerning average values of bank accounts is a parameter useful to demonstrate the good level of economic welfare in the city of Siena with a distribution of richness that is more balanced than other cities.

Province	Value	Ranking (1° - 107°)
Siena	28.971,50	14°
Firenze	26.850,00	24°
Lucca	23.406,00	43°
Prato	23.240,70	44°
Arezzo	21.818,90	53°
Pisa	21.396,00	56°
Pistoia	20.308,40	62°
Massa-Carrara	19.554,00	65°
Livorno	19.095,40	69°
Grosseto	17.678,10	75°
Toscana	22.231,90	

Table 6. 13. Bank deposits per person. Source: Siena 2030 report (2019).

STRENGTHS AND OPPORTUNITIES	WEAKNESSES AND THREATS
Siena is a province with a good level of general well-being as evidenced by:	However some points require attention / evaluation:
<ul style="list-style-type: none"> • Gross income per capita above the Tuscan and national average; • Percentage of pensioners with low-value pensions lower than the Tuscan and national average; • Percentage of individuals in low work intensity households lowest among the Tuscan provinces; • Non-performing entry rate of bank loans to households slightly lower than the Tuscan and national values; • Tuscan province with the highest value of bank deposits pro capite; • Household expenditure for the consumption of durable goods above the Tuscan average and in the highest quartile of the Italian provinces; • High attractiveness of immigrants and low emigration. 	<ul style="list-style-type: none"> • The birth rate, negative both in Tuscany and Italy, is even more negative for the province of Siena; • Percentage of declarations 0-10,000 euros on the total declarations above the Tuscan average; • The eviction orders issued are above the Tuscan and national average; • Per capita protests have a double value compared to the Tuscan average and place it in 73 ° (1st is good), position among the Italian provinces.

Tourism is one of the most important sectors in the city that highly contribute to the level of welfare of the city in terms of income. Nevertheless, the impact of tourism is still uncertain and would need careful monitoring.

Ingressi ai Musei Comunali - Andamento dal 2004 - Comune di Siena																
Museo	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Museo Civico	180.234	171.394	166.313	151.066	144.941	138.289	131.282	132.949	138.230	153.026	156.430	152.099	157.682	156.565	161.317	150.028
Torre del Mangia	114.906	127.239	135.666	118.993	101.462	97.527	89.683	100.744	102.991	126.111	146.733	138.323	145.809	147.897	148.533	134.707
Santa Maria della Scala	70.292	55.468	58.648	65.887	48.725	47.416	35.045	42.376	47.624	46.805	46.665	75.389	82.965	131.960	169.218	138.229
Palazzo delle Papesse	27.363	26.733	27.507	23.874	14.147											
Totale	392.795	380.834	388.134	359.820	309.275	283.232	256.010	276.069	288.845	325.942	349.828	365.811	386.456	436.422	479.068	422.964

Fonte: Ufficio Statistica del Comune di Siena su dati Servizio Cultura

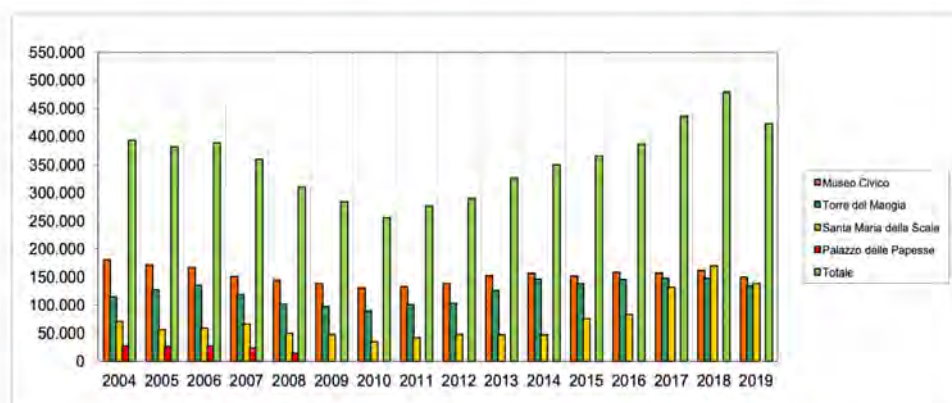


Figure 6. 25. Entrance fees to municipal museums. Trend from 2004 to 2019. Source: Municipality of Siena website.

Municipality of Siena	2015	2016	2017	2018	2019	Var, % 15/19	Var, % 18/19
Tourists							
Italians							
Arrivals	170.992	208.075	218.787	217.368	226.603	32,52%	4,25%
Attendances	453.665	449.296	472.328	453.275	472.797	4,22%	4,31%
Foreigners							
Arrivals	25.561	265.485	280.751	296.966	297.601	1064,28%	0,21%
Attendances	590.999	555.482	583.078	613.676	630.991	6,77%	2,82%
Total							
Arrivals	426.602	473.560	499.538	514.334	524.204	22,88%	1,92%
Attendances	1.044.664	1.004.778	1.055.406	1.066.951	1.103.788	5,66%	3,45%
Average stay	2,45	2,12	2,11	2,07	2,11		

Table 6. 15. Total tourist flows (hotel and non-hotel structures) in the municipality of Siena. Source: Municipality of Siena.

6.2.3.2. Employment

A general overview on business and level of employment in the city of Siena is periodically provided by the Sole 24ore. The following infographic provides values and ranking concerning different parameters in 2020.

Employment rate is estimated at 69% with a male-female gap of over 12%. Improvements would be needed in the field of youth entrepreneurship (only 0.07% are led by under 35 years managers) and female entrepreneurship (only 0.2% are led by women). Almost 5 out of 1000 companies are Innovative SMEs. The level of digitalisation of enterprises needs improvements.



Figure 6. 26. Business and employment in the province of Siena. Source: Sole 24 Ore (2020).

6.2.3.3. Innovation

In addition to the University of Siena, the city also hosts two other research organisations. One is the TLS, Toscana Life Sciences. It is a non-profit organization active in the region to support research activities and encourage innovative start-ups in the life sciences field. It was born by the impulse of the most relevant institutional subjects, from the university, clinical, industrial and financial world of Tuscany. (<https://www.toscanalifesciences.org/it/>).

The other, Santa Chiara Lab, is the University of Siena Center for Interdisciplinary Innovation activities.

Its mission is to bring together the academic world with the business world to create sustainable solutions. There are 25 innovative start-ups in the province of Siena, 13 of which in the Municipality of Siena (Source: Register of Enterprises via CCAA).

6.2.3.4. Activity sectors

The table below shows the number of employees in main activity sectors and trends are provided in the following table. Data refers to the Municipality of Siena. Main sectors include Agriculture and Manufacturing (industrial districts of campervan, crystal and furnitures), commerce and tourist services.

Employees by economic activity (number)				
Sectors	2017	2018	2019	Var % 2018/19
Agriculture, forestry and fishing	12.251	12.927	13.629	5,4%
Extraction of minerals from quarries and mines	159	158	152	-3,8%
Manufacturing activity	17.480	18.162	18.190	0,2%
Supply of electricity, gas, steam and air conditioning	351	353	293	-17,0%
Supply of water, sewerage and management activities	797	832	951	14,3%
Constructions	7.714	7.857	7.694	-2,1%
Wholesale and retail trade	14.312	14.649	14.669	0,1%
Transport and storage	2.963	3.019	3.030	0,4%
Activities of accommodation and catering services	12.674	13.439	14.034	4,4%
Information and communication services	1.866	1.880	1.873	-0,4%
Financial and insurance activities	5.343	5.099	5.102	0,1%
Real estate activities	1.391	1.548	1.549	0,1%
Professional, scientific and technical activities	1.866	1.968	2.114	7,4%
Rental, travel agencies and business support services	5.315	5.218	5.035	-3,5%
Public administration	8	7	3	-57,1%
Instruction	494	540	527	-2,4%
Health and social assistance	1.760	2.163	2.426	12,2%
Artistic, sporting and entertainment activities	844	835	854	2,3%
Other service activities	2.513	2.501	2.508	0,3%
Unclassified businesses	243	288	360	25,0%
TOTAL	90.344	93.443	94.993	1,7%

Table 6. 16. .Employees by economic activity (number). Source: Siena 2030 report.

6.2.3.5. Facilities

As mentioned above, **Siena is a city rich in cultural facilities**, both because of the presence of two universities and because of the huge artistic and cultural heritage concentrated in a small territory. As indicators we can consider the public museum: Il Museo Civico e Torre del Mangia, Il Complesso Museale Santa Maria della Scala, the Water Museum, the National Picture gallery, the Duomo's Metropolitan Opera Museum, Children's museum and other private' ones or or university-owned, such as Torture museum, Museum of Natural History Accademia dei Fisiocritici, Botanical Gardens. It is important to mention that each of the 17 Contrade has a museum where important elements of its history are preserved. Siena has two historic theatres (Teatro dei Rozzi and Teatro dei Rinnovati) and a number of small spaces used for off-theatre performances and managed by non-profit associations.

There are only 4 small cinemas, all located in the historic centre. In the last 10 years, as has happened in many other Italian cities, a number of cinemas have closed. In addition to the Municipal Library of the Intronati, each university faculty has its own library open to the public (about 10). Investments by the Municipality of Siena have made it possible to have a very wide diffusion of sport among citizens with peaks of excellence and a rich panorama of facilities (there are over 60) and about 80 sports associations. To enhance the rich world of Sienese sport, the Municipal Administration has decided to advance the candidacy of the city of Siena to the prestigious title of European city of Sports for the year 2020.

Type of sport facilities	Number
Regulatory football fields	5
7-a-side or 9-a-side football fields	10
5-a-side football fields	4
Multipurpose slopes -playgrounds	11
Palasport	6
School gyms	11
Municipal swimming pools	2
Tennis courts	5
Boules	3
Ice skating - hockey - cycling facilities	3
Other sports facilities	4

Table 6. 17. Number and type of sports facilities. Source: "Siena, city of sports 2020" report, Municipality of Siena.

6.3. Parishes/quarters levels

6.3.1. Territorial description

The Ravacciano neighbourhood hosts **1631 inhabitants**, with an average density of 35.6 people/hectare. The first settlement was built during the '30s. Then the built area grew until the '70s and '80s. The valleys of Follonica and Ravacciano, separated by the ancient wall, connect the old city to the Ravacciano neighbourhood and the productive and commercial district down the hill. These valleys are partially accessible to people and are fractionated into a number of private properties, besides a few areas with public ownership.

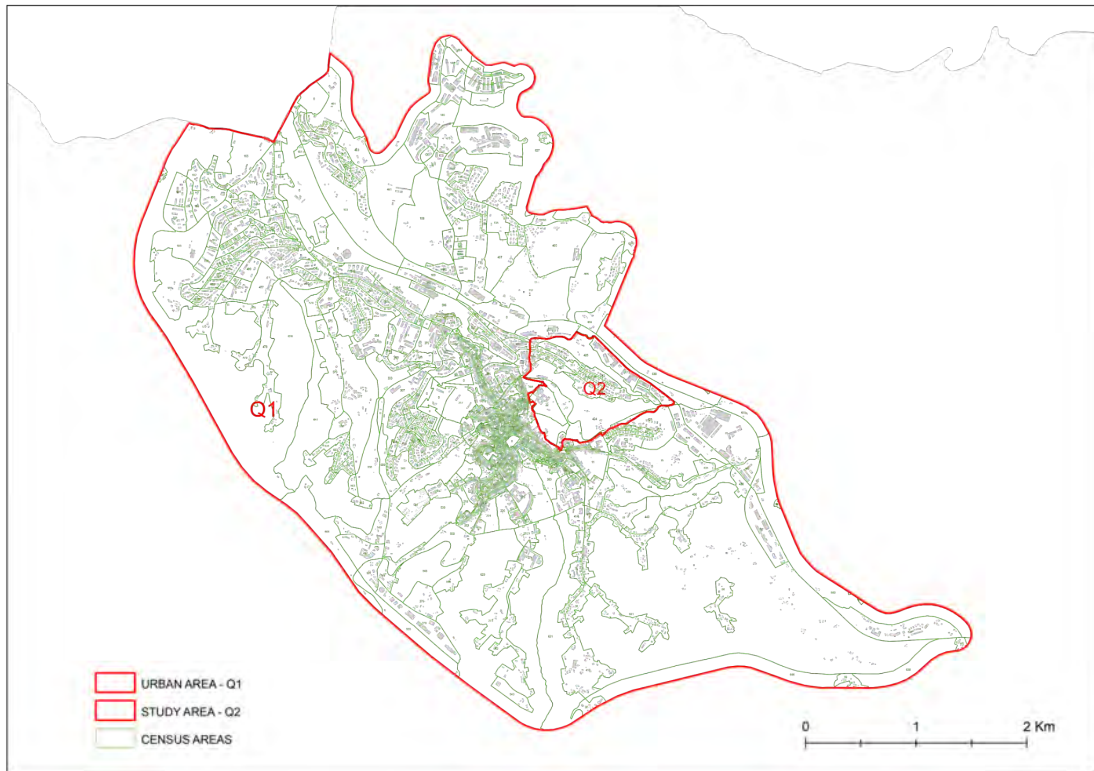


Figure 6. 27. Territorial system boundaries: Q1 - Siena urban system; Q2 – Ravacciano neighbourhood and valleys.
Source: Pulselli & Romano (2020 – unpublished).

The following figures show a satellite image of the case study area with a few main services highlighted (Figure 7) and the distribution of census units in the area, as the minor spatial unit used for surveys of statistical data. Demographic data are available per census unit.



Figure 6. 28. URBiNAT case study area: Q2 – Ravacciano neighbourhood and valleys. Source: Pulselli & Romano (2020 – unpublished).

6.3.1.1. Biophysical characterization

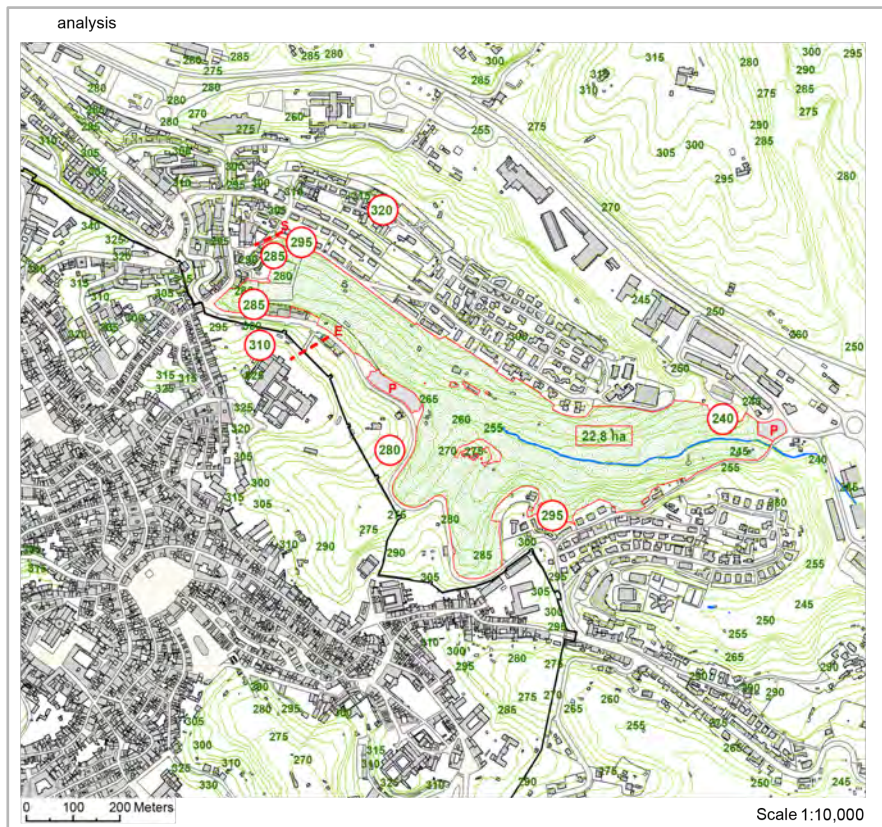


Figure 6. 29. Altimetry in URBiNAT case study area: Q2 – Ravacciano neighbourhood and valleys. Source: Pulselli & Romano (2020 – unpublished).

This section is taken from research made by Francesca Paola Mondelli of the University of Roma3 and presented during the City-Minded workshop (see section 5.3). It highlights the characteristics of the Landscape in Siena with a focus on the Ravacciano neighbourhood and valley.

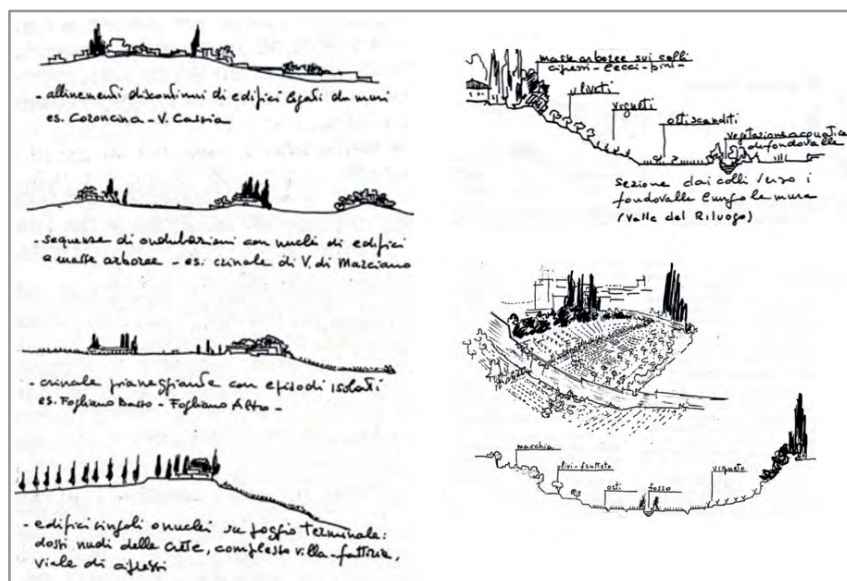


Figure 6. 30. Characterization of the landscape of Siena by Vittoria Calzolari (Master Plan Bernardo Secchi). Source: Mondelli (2020 – unpublished research).

The sketches made by Vittoria Calzolari (Figure 28) for the Master Plan of Siena in 1986-1990, under the direction of Bernardo Secchi, provide evidence of the unique role of green valleys in Siena and the importance of their conservation. The Master Plan played a crucial role to safeguard the area around Siena from urban sprawl and still represents a consistent demonstration of the importance of natural areas in relation with the built environment to determine the landscape identity of Siena.

An additional analysis concerns the combined representation of orographic and hydrographic systems together with infrastructures and the urban fabric (Figure 31).

A specific focus is needed to describe the ancient water network of Siena (Figure 30) that is the basic source of water for the city. The network of underground drifts, namely “Bottini”, has been built in the late Middle Age, to supply water within the city walls of Siena for housing, crafts, economic and commercial activities, as well as for the risk of fire, achieving a total length of about 25 km in the late XIV Century. The Bottini have been capturing and conducting rainwater from the countryside to the fountains in the city centre for centuries, and still provide an average 9.5 L s^{-1} of clean water, though it is not drinkable nowadays. Currently, water provided by the ancient aqueduct is only used to fill a set of monumental fountains and is then wasted. A branch of the Bottini network feeds the fountain in the Follonica valley and other three fountains in the Ravacciano valley (see section 5.1). The water supply in the Ravacciano valley is due to the Bottini network and its final trait includes an outdoor stream of water flowing until the end of the valley.

Figure 6. 31 shows a contextualised picture of the orographic and hydrographic systems in the Ravacciano valley. Figures 32 and 33 show the visual relation between the Ravacciano neighbourhood and the historical centre of Siena, both on top of two hills separated by the Ravacciano valley.



Figure 6. 31. Orography, hydrography, infrastructures, and urban fabric of Siena. Source: Mondelli (2020 – unpublished research).



Figure 6. 32-33. (On the left) Representation of the Bottini network. (On the right) View of orography and hydrography in the Ravacciano valley. Source: Mondelli (2020 – unpublished research).



Figure 6. 34-35. (On the left)View of Siena from Ravacciano and the ancient wall barrier. (On the right) View of Siena from Ravacciano and the ancient wall barrier. Source: Mondelli (2020 – unpublished research).

6.3.1.2. Land use/ land cover



Figure 6. 36 – Land use in the case study area of Ravacciano and the green valley. Source: Romano & Pulselli (2020 – unpublished)

Figure 6. 36 shows a classification of land use within the case study area with a specific focus on green infrastructures and natural systems. It shows the current state of the valley taken from official datasets of the Municipality of Siena.

Figure 6. 36 shows a view (1954) of the first settlement built in the '30s and the intense agricultural use of the valleys that have been progressively abandoned.

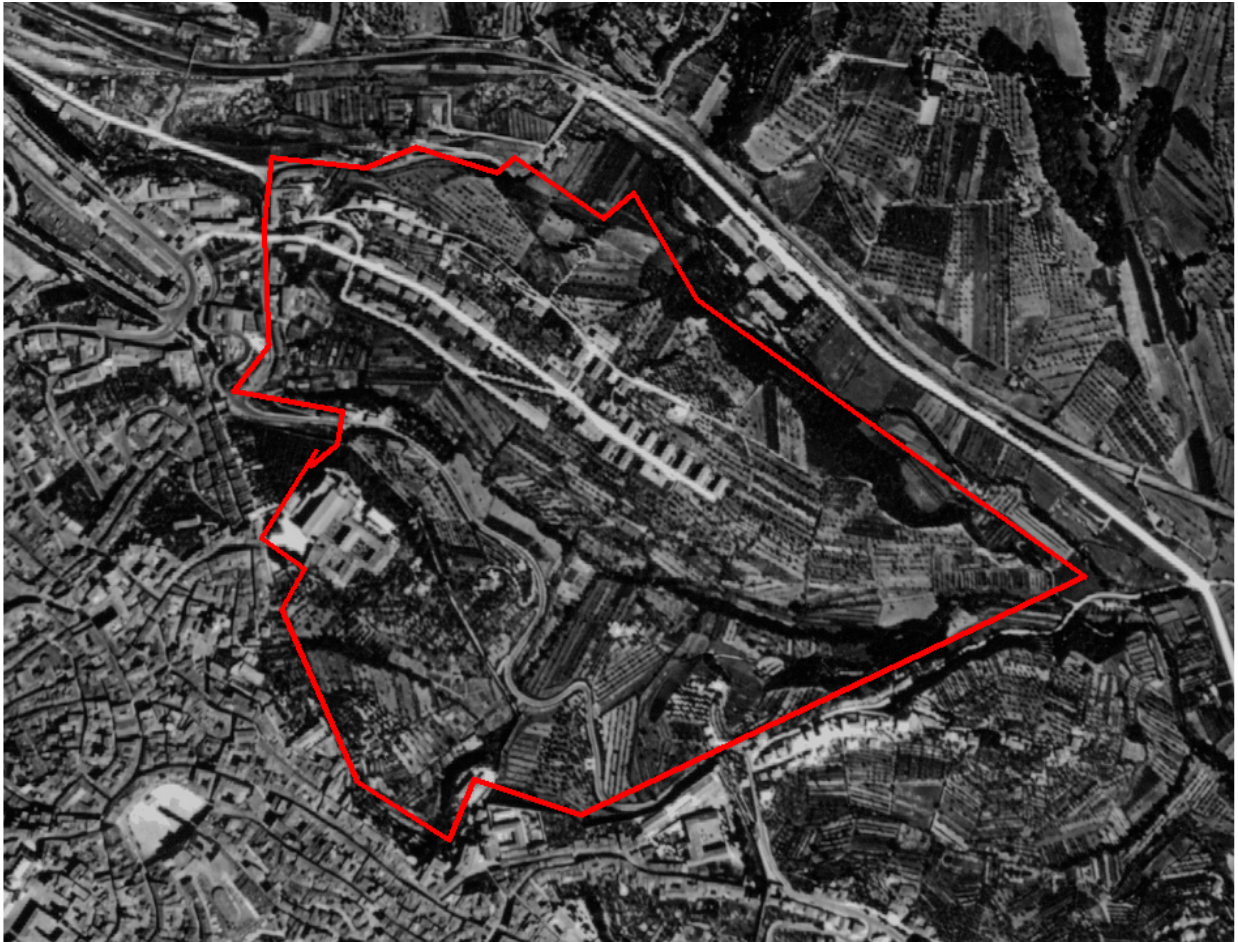


Figure 6. 37. View of Ravacciano (1954)

6.3.1.3. Transportation network and services

Ravacciano is very close to the historic city centre, but it is also well connected to the railway station (only 2 km away and reachable on foot or by bus) and to the hospital (about 5 km away). There is no official data on public transport services specific to this area. For an analysis of the neighbourhood please refer to the territorial mapping (5.2.6.).

The green valley of Ravacciano is currently fragmented into small private properties (cyan) except for a few public areas owned by the Municipality of Siena and public utility Siena Parcheggi S.p.A. The fragmentation of properties makes the participatory activities of co-design of healthy corridors crucial for the next development of the valley.



Figure 6. 38. Public services in the case study area. Source: Romano & Pulselli (2020 – unpublished).

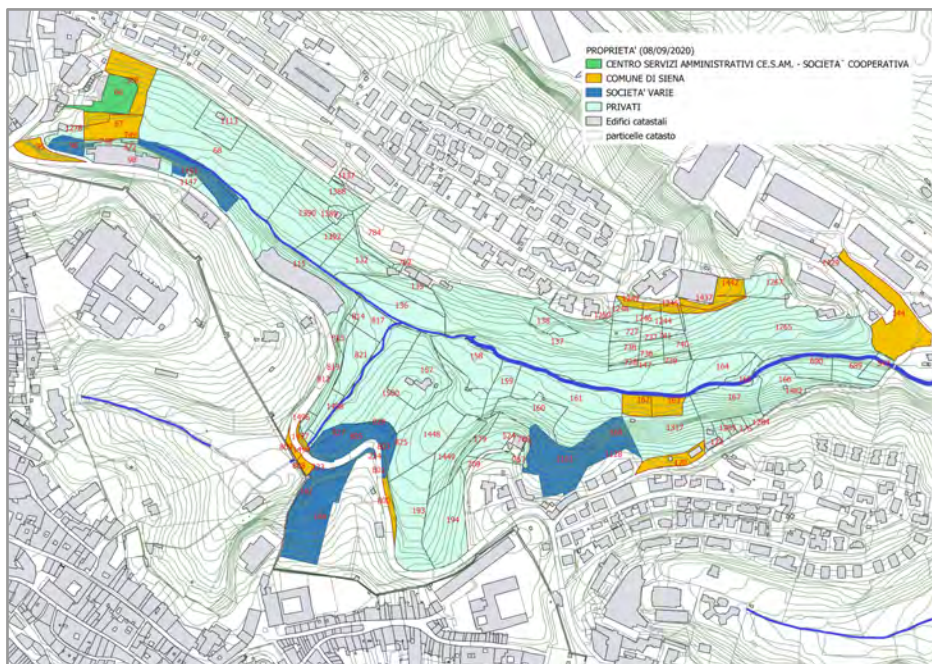


Figure 39 – Public/private ownership in the case study area (2020).

6.3.1.4. Green Infrastructure and Biodiversity

The Ravacciano valley offers a mosaic of different but connected landscapes, Busseto Wood, located on the hydraulic right of the Fosso di Ravacciano valley, constitutes a small green lung close to the city walls and one of the last pieces of green natural between the valleys that creep into the city. The geographic context of the valley helps to create a humid and cool environment favouring the presence of a remarkable variety of vegetation which changes its composition depending on the altitude.

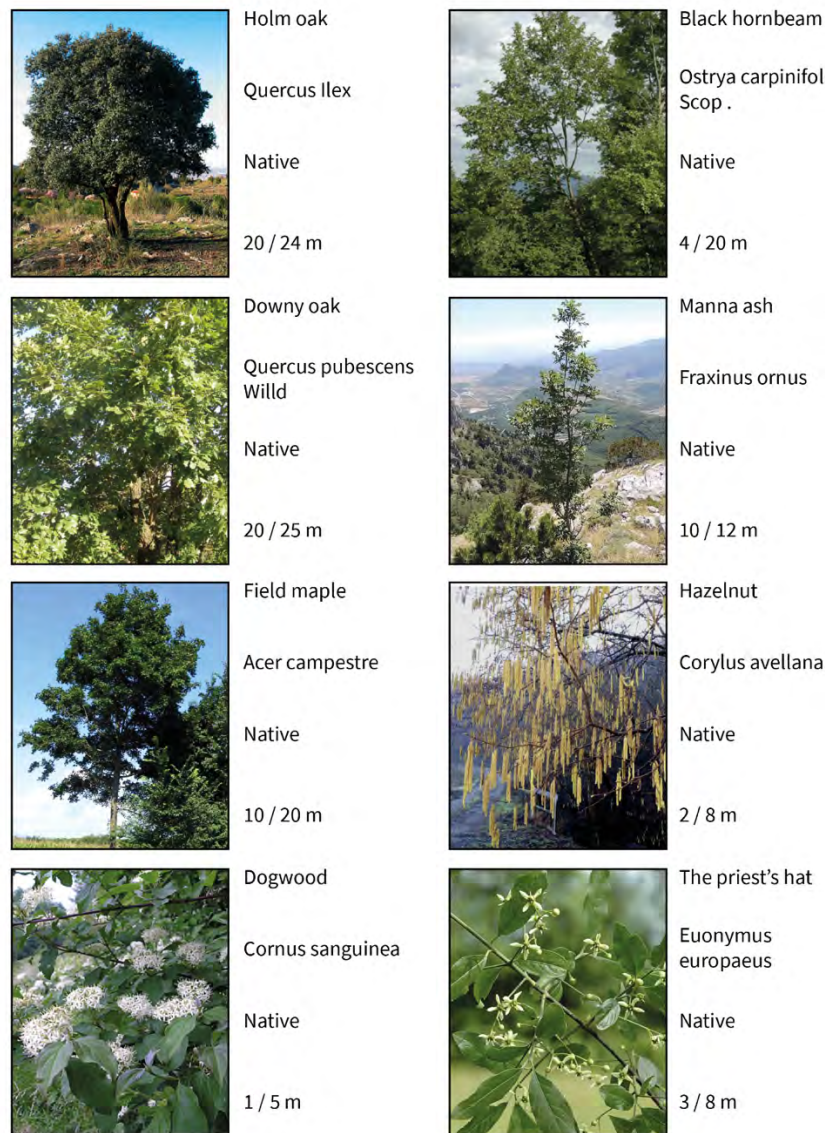


Figure 6. 40. List of species. Data source: actaplantarum.org

In the highest part, where the sun is drier and sunnier, the presence of holm oak (*Quercus ilex* L.) is favoured, while on the slope near the Busseto road the tall forest is mainly composed of black hornbeam (*Ostrya carpinifolia* Scop .) and downy oak (*Quercus pubescens* Willd.).

Going down towards the valley, essences that prefer a cool climate like the manna ash (*Fraxinus ornus* L.), the field maple (*Acer campestre* L.) and the hazelnut (*Corylus avellana* L.), with undergrowth consisting of various species such as the dogwood (*Cornus sanguinea* L.), the priest's hat (*Euonymus europaeus* L.) and the dogwood (*Cornus mas* L.).

Near the Ravacciano ditch, with a greater presence of humidity in the ground, the conditions for the development of a small nucleus of English oak (*Quercus robur* L.) have been created. Near the watercourse, specimens of white willow (*Salix alba* L.) also grow, immersed in carpets of horsetail (*Equisetum* L.).

Over the centuries and up to the present day, the valley has also been involved in agricultural activity, so it is common to come across fruit trees and vine shoots.

In the image below a synthetic description of the main species.

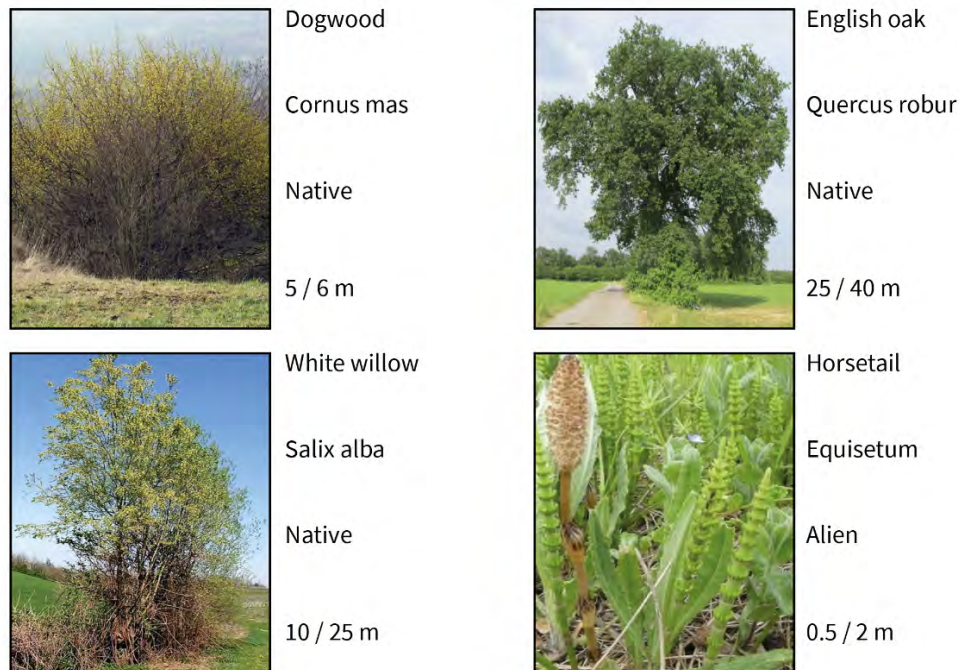


Figure 6. 41. List of species. Data source: actaplantarum.org

Figure 6. 42 and table 18 provide a general picture of the green areas in the Ravacciano district. The area currently presents itself as an opportunity to test regenerative processes just outside the ancient walls. The lands of the two valleys involved (Follonica and Ravacciano) are largely public or managed by Legambiente.

What makes the area interesting for redevelopment are the opportunities that would be created by integrating the connective system thanks to the reopening of ancient historical access routes to the city and the increase of the public green endowment. As can be seen from the table, the green endowment is much lower than the national average (about 31 mq/ab. Source: ISTAT), which would be in line with the previous index with some simple interventions of soft mobility, use of the Busseto wood, restoration of the sports fields at the Fonti d'Ovile and agricultural/social activities.

The interventions (Rigenerar_SI project) also concern accessibility to the area, now compromised. Currently, the inhabitants of the neighbourhood have to take a long walk to reach the escalator. Most of them, therefore, prefer to take a vehicle and then find themselves in a neighbouring area of the centre. Pedestrian and cycle infrastructures connecting Viale Toselli, the escalator of San Francesco and the Fonti d'Ovile fill these criticalities, allowing you to reach the main streets of the historic centre or the preferential communication roads to go to work.

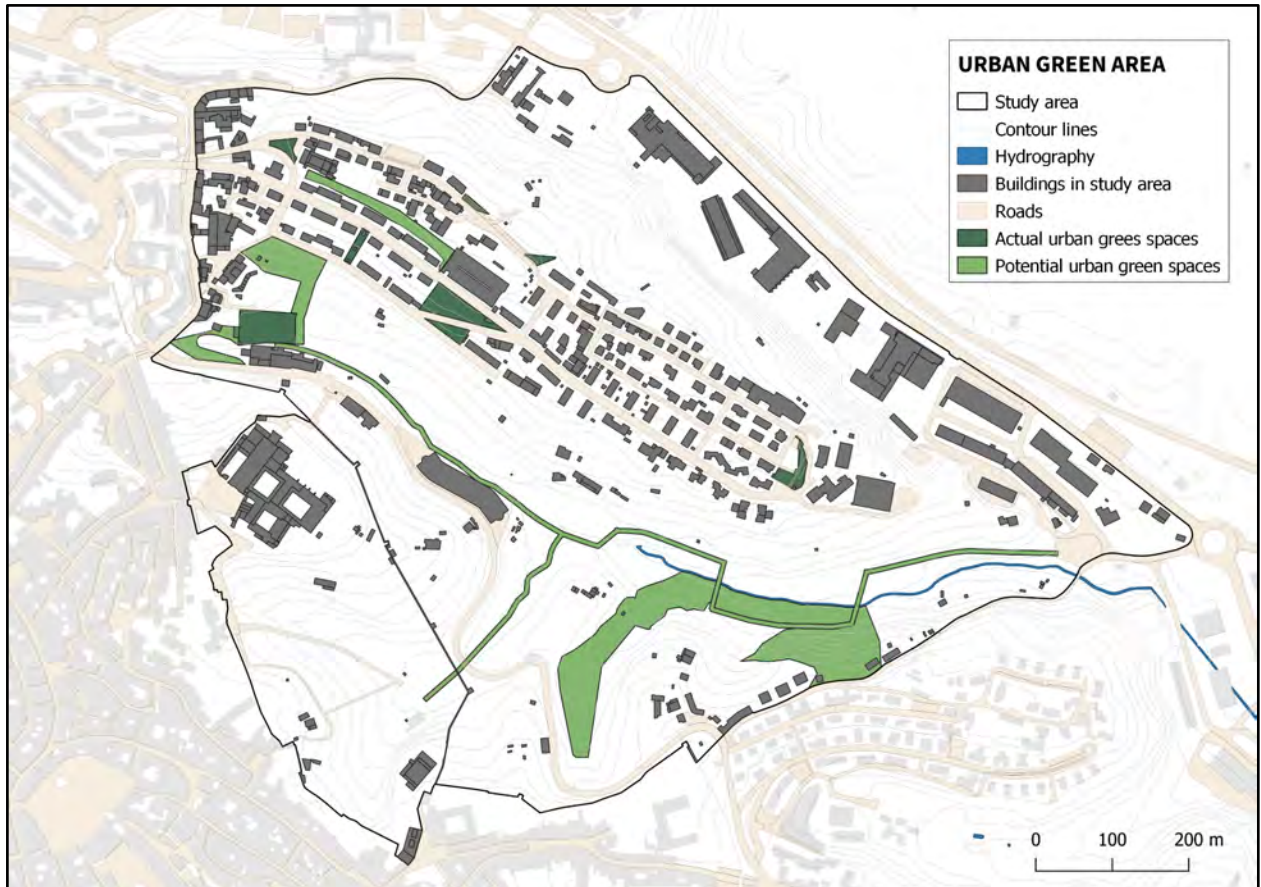


Figure 6. 42. Map of current and potential public green spaces in Ravacciano district.

Ravacciano			
UNIT	Total mq	Inhabitants	Mq / ab.
Urban green area			
Current	8.848	1631	5,42 mq/ab
Potential	46.184		25,25 mq/ab
Total	55.032	1631	30,67 mq/ab

Table 6. 18. Current and potential public green spaces in comparison in the Ravacciano district.

6.3.1.5. Local Masterplans

The Municipality of Siena has adopted a new urban planning instrument, the Operational Plan (P.O.), with Resolution n. 58 of 19/05/2020 of the City Council, which is currently in the process of approval. This urban planning instrument integrates and updates the previous instrument, the Urban Planning Regulations in force since 2011. In the case study area, the O.P. distinguishes the urban territory, which refers to the built-up area including the Ravacciano district, and the rural territory.

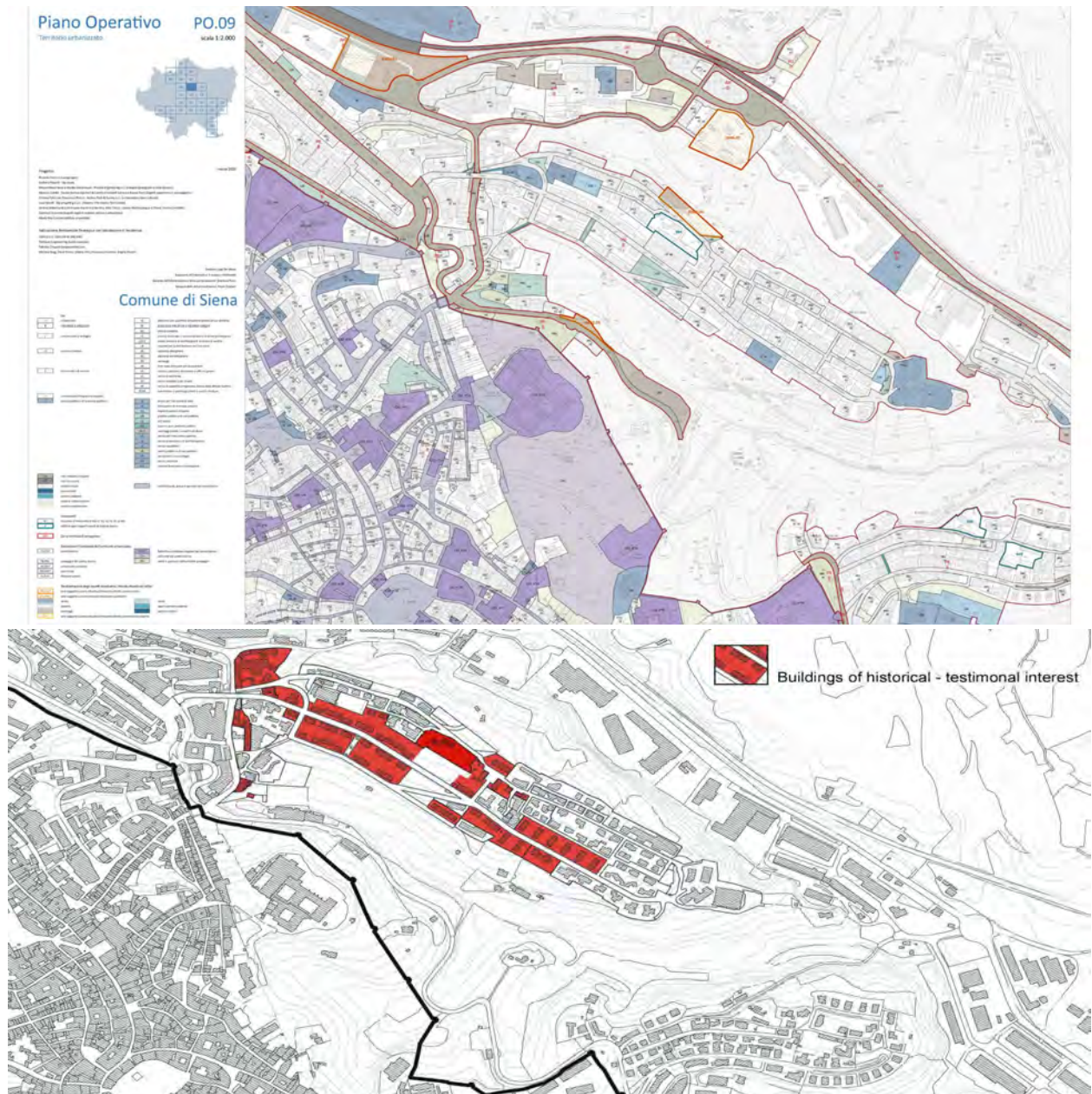


Figure 6. 43- 44. The map frames the Ravacciano district and regulates the urban area; The map shows the buildings of historical-testimonial interest.

The map highlights: the public city (spaces, equipment and public services or services of public interest); homogeneous built-up areas ("settlement fabrics") with compatible uses and admissible building interventions; transformation areas (building lots/areas).

The Ravacciano neighbourhood represents one of the first settlements that, since the early twentieth century, has constituted the expansion of the city outside the walls. It is a district with a prevalent residential function characterised by many buildings of historical-testimonial interest dating back to before the '50s and created as social housing. The O.P. prescribes for this type of building the preservation of the external appearance and the possibility of functional reorganisation of the internal spaces and the size and number of the accommodation.

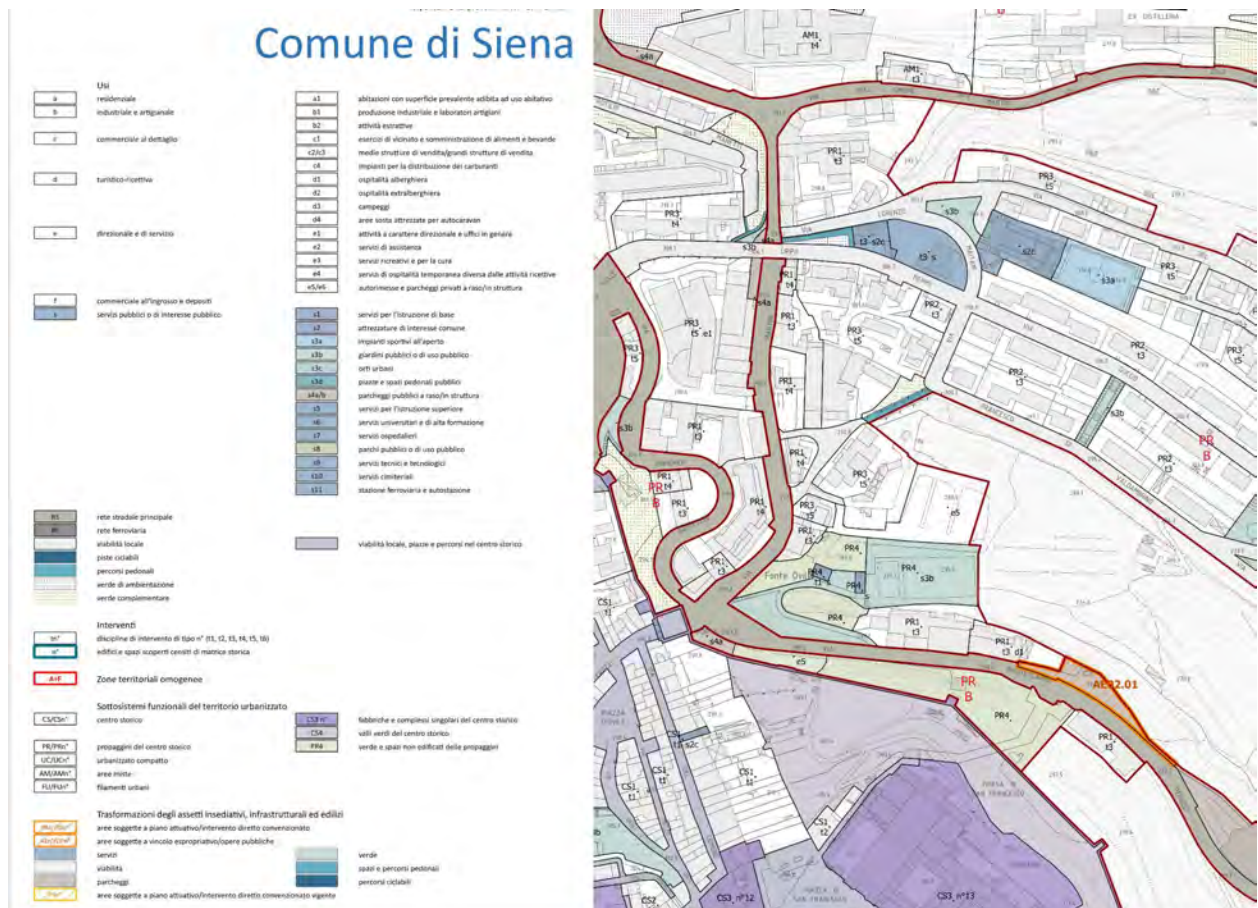


Figure 6. 44. Detailed map of urban area with description chart.

The framed area is the Ravacciano valley, a rural area enclosed between urbanized areas, respectively the Ravacciano district to the north, the artisan area of Via Toselli to the east, the built-up area outside Porta Pispini to the south, and the historic centre of Siena to the west. The Ravacciano valley is part of the Parco Agricolo del Buongoverno (art. 91 of the O.P. regulations), which covers the basement of the walled city for an extension of approximately 5162.85 ha and includes mainly private areas.

In the Parco agricolo del Buongoverno the guiding policies are:

- the maintenance of the physical and perceptive continuity between the settlement and the agricultural fabric;
- the protection of the dense-meshed agricultural texture, terracing and traditional agricultural arrangements;
- the recovery of historical agricultural landscapes;
- the contrast of hydro-geological risk;
- the improvement of the continuity of the ecological network;
- the use of the park by residents and tourists for recreational, educational and didactic purposes, recovering the historical road network and integrating it with a soft mobility network;
- the promotion of urban agriculture compatible with the valuable landscape context aimed at the production of quality local food and maintenance of the territory.

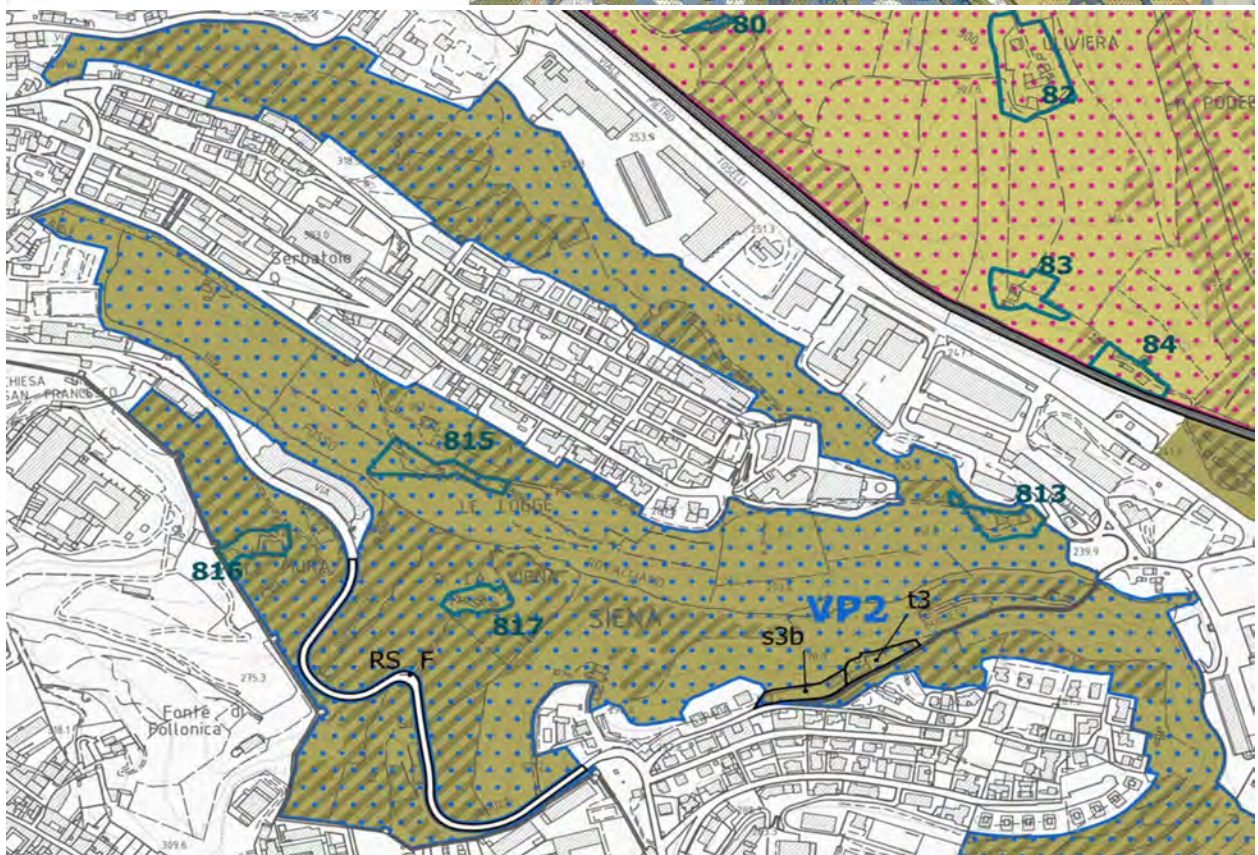
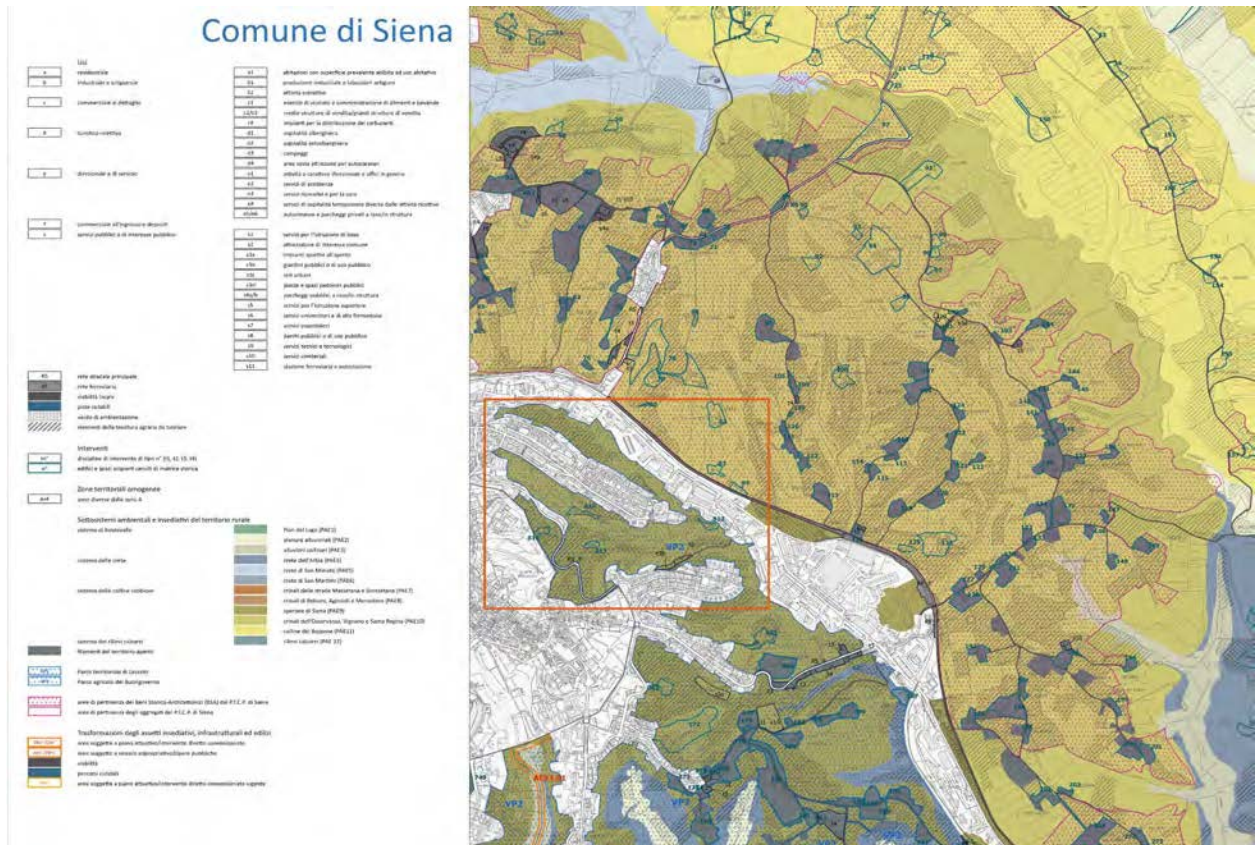


Figure 6. 45, 46 The map of the rural territory and the framed area with the Ravacciano valley.

In the Parco Agricolo del Buongoverno it is forbidden to build new houses, while the construction of agricultural outbuildings is allowed.

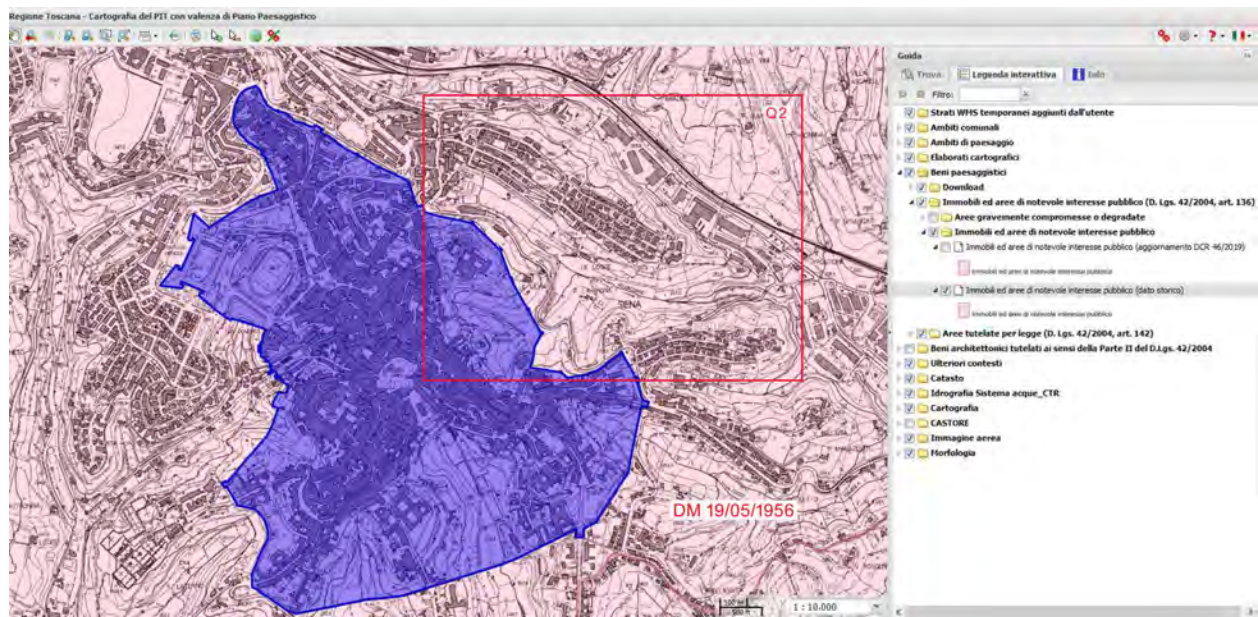


Figure 6. 47. Landscape constraints.

Ravacciano neighbourhood and the valley have been subject to a landscape constraint by Ministerial Decree since 1956 (Ministerial Decree 14/05/1956 G.U. 129 of 1956), which, like a wide ring, delimits the walled city (historic city). The name of the area and the reason for the restriction are given in the bond.

Designation: “Area in the municipality of Siena (surrounding the built-up area of Siena)”. Reason: “[...] the above area is of considerable public interest because, in addition to forming a natural setting of singular panoramic beauty, it offers numerous viewpoints accessible to the public from which the spectacle of that beauty can be enjoyed”.

In the Region of Tuscany's Plan of Orientation (PIT), which became a landscape plan in 2014 in agreement with the Ministry of Cultural Heritage and Activities and Tourism, the constraint sheets were revised and updated with the identification of objectives and prescriptions regarding the environment and settlement systems. The 1956 constraint card frames a wider area than the case study for which some main objectives are identified.

As far as the environment is concerned, objectives are:

- conservation of traditional agroecosystems and the characteristic relationship with forest environments;
- improvement of the quality and maturity levels of forest ecosystems;
- protection of the minor hydrographic network and riparian vegetation.

For the settlement/anthropic part objectives are:

- protection and enhancement of the basement of the intramoenia city made up of green and agricultural areas;
- protection of the historical settlement system, including complexes of historical and architectural value, rural nuclei, their appurtenances and the first nineteenth and twentieth-century expansions;
- preservation of the relationships (hierarchical, functional, perceptive) of the historical settlement system (urban and rural); preservation of the figurative assets of the traditional

agricultural landscape by enhancing the functional and perceptive relationships with the historical settlement;

- preservation of the historical road network, connecting elements between settlements, cultural heritage and rural areas.

6.3.1.6. Urban/landscape design Projects

A research project, namely Rigenerarsi, has been conducted by the Municipal administration of Siena together with local stakeholders to collect information and start a regeneration process of the Ravacciano valley. A website collects a number of activities and projects concerning the case study area at this link: <https://www.rigenerarsi.eu/wp/>

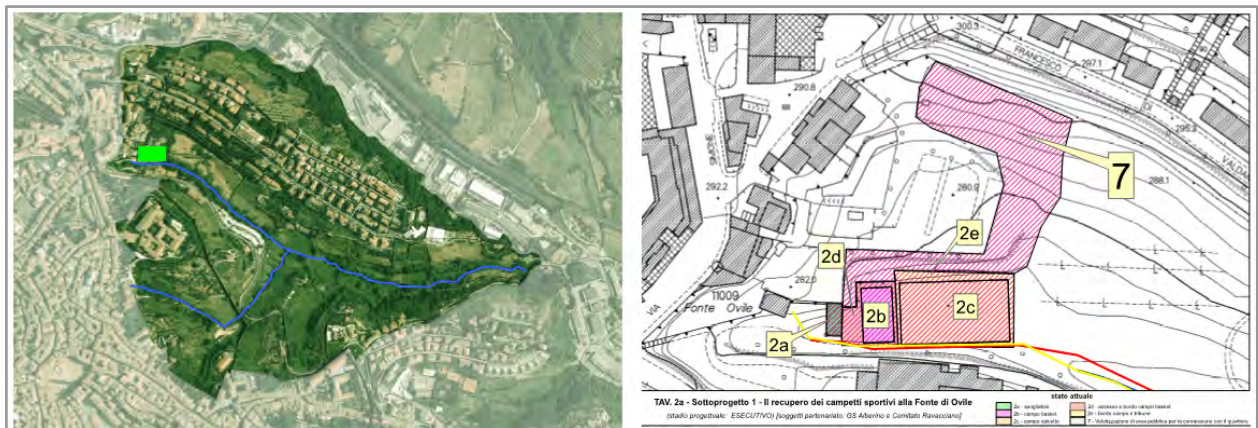


Figure 6.48. shows in a sequence the location and dimension of the main projects.

Activation of sports fields in the Ravacciano neighbourhood: location (a) and plan (b).



The cycling pathway. First proposal of the Municipality (c); new proposal of local stakeholders (d)



Location of the ancient fountains in the valley (e)
(f)

Pedestrian paths made accessible by local stakeholders

Figure 6. 49 (a-f). Main projects of the RigenerarSI initiative.



Figure 6. 49 (g). Main projects of the RigenerarSI initiative.

Regarding the Busseto forest (Figure 33g), a recent survey of biological biodiversity has been made together with students, under the direction of Prof. Claudia Angiolini of the Department of Life Sciences at the University of Siena. Citizens launched the idea of making the forest accessible through a pathway with signals on different plant species. The workshop allowed for identifying 21 species of plant trees and creating 21 signals with QR codes to be shown throughout the pathway in the forest. Moreover, invasive species have been cut to safeguard biodiversity. A process of reforestation in the valley has been started.

Other previous projects

Architects Nepi & Terrosi won a contest launched by the Municipality of Siena to connect the Ravacciano neighbourhood to the city centre. A pedestrian and cycling bridge has been designed (186 m length, 2.4 m width, 7% slope) including a set of viewpoints along the pathway.



Figure 6. 50. Location of the pedestrian bridge. Source: Nepi & Terrosi.





Figure 6.51. Representations of the pedestrian bridge. Source: Nepi & Terrosi.

6.3.2. Social description

Considering the small size of the Ravacciano neighbourhood (the study area), it was not easy to find specific data on the presence of vulnerable situations, conditions related to housing, social services and cultural fruition. For all these aspects we refer to the second part of the Local Diagnostic where, through observation, interviews, focus groups... It has been possible to build a more complete picture of the neighbourhood in terms of social and economic aspects.

6.3.2.1. Demographic

Demographic data have been provided at the level of census units by selecting 14 units concerning the neighbourhood of Ravacciano and 5 additional units concerning the neighbour of Busseto that is also connected to the Ravacciano valley. The information provided includes data on gender and age.

Data on the number of residents have been collected per census unit in time series (2011-2020).

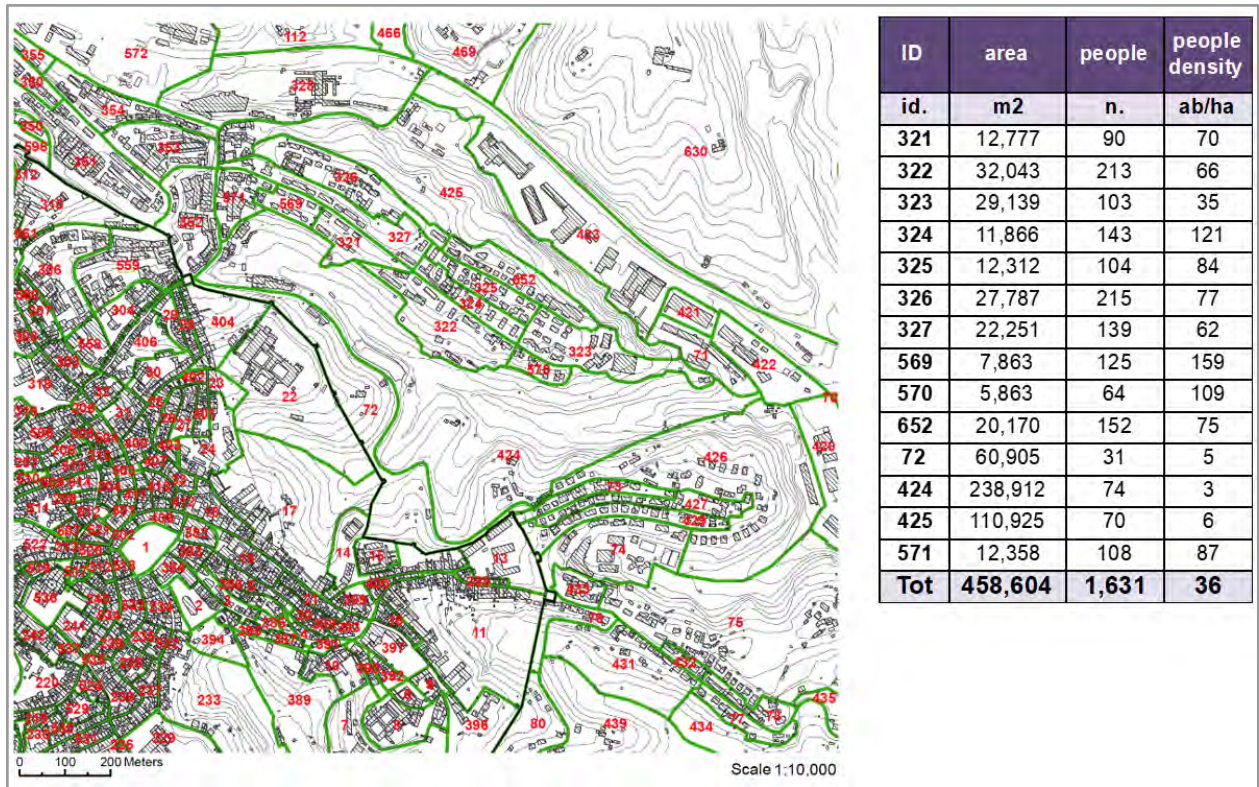


Figure 6. 52. Census units: ID number and basic data in the Ravacciano neighbourhood.

Table 6. 13 shows data on population gender per census unit for the Ravacciano neighbourhood (2019). Figure 38 shows screenshots from the SIT portal of the Municipality of Siena with selected census units in the Ravacciano neighbourhood and corresponding data sets. Table 20 and Figure 44 shows data on population gender and age per census unit for the Ravacciano neighbourhood (2019). The average age in the neighbourhood is 48 years (the average age in Italy is 44.9).



Figure 6. 53 - Number of residents per census area and population density (colour scale) - 2020.

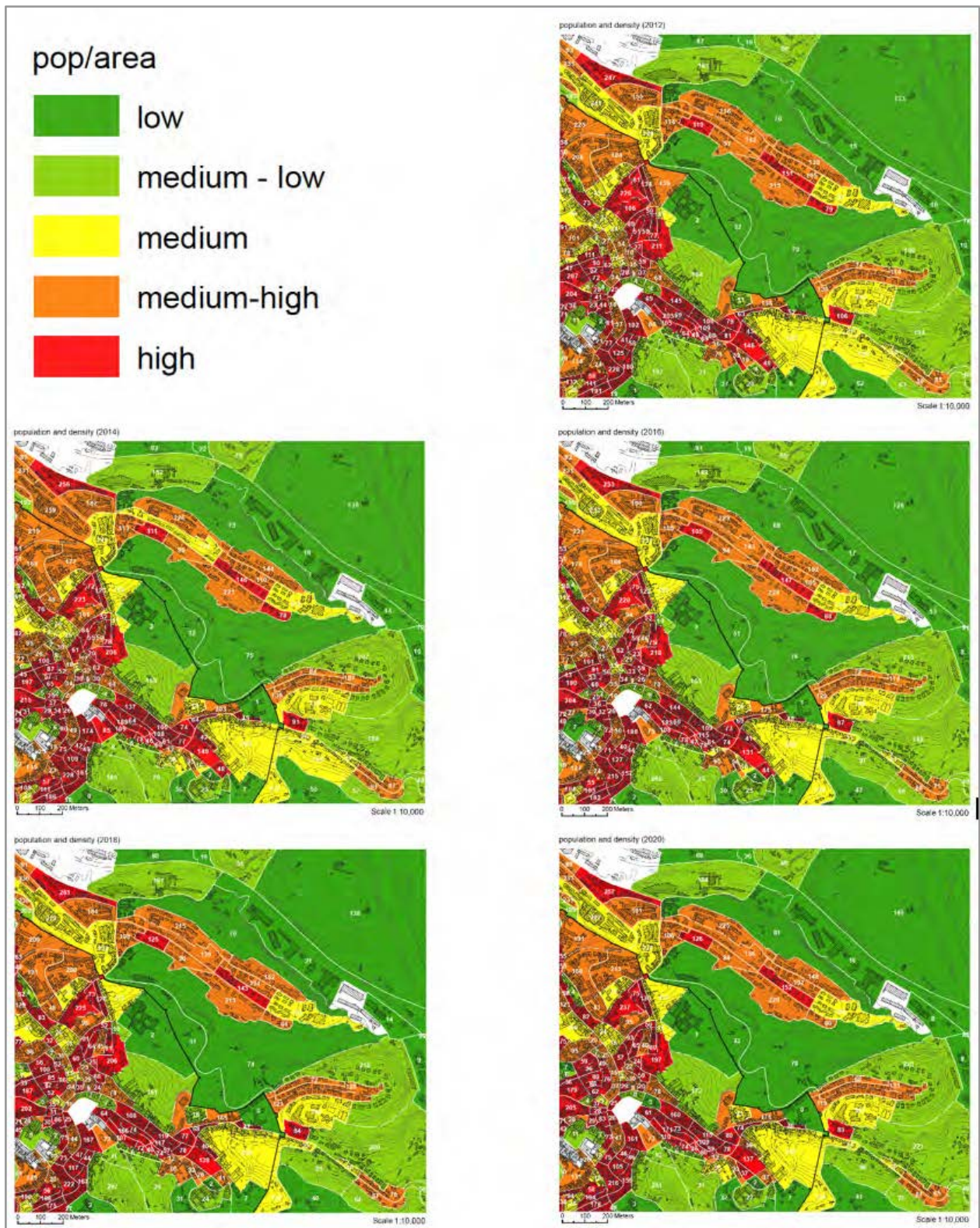
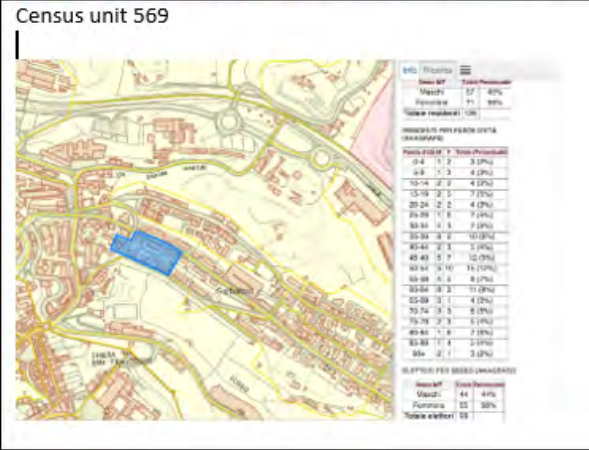
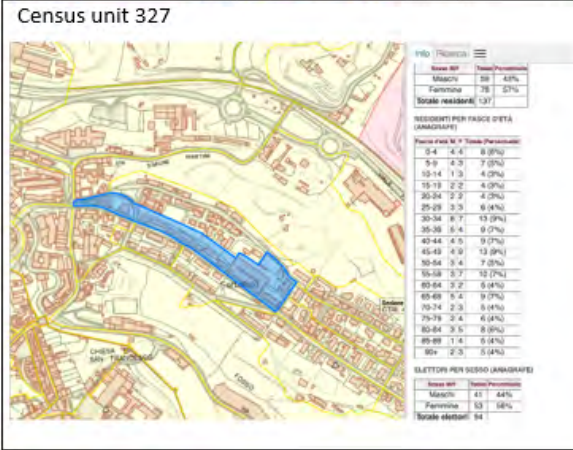
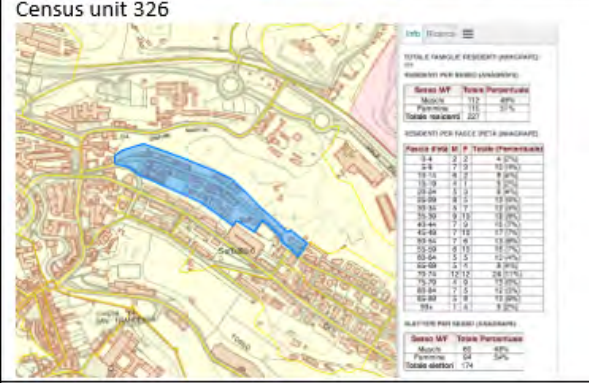
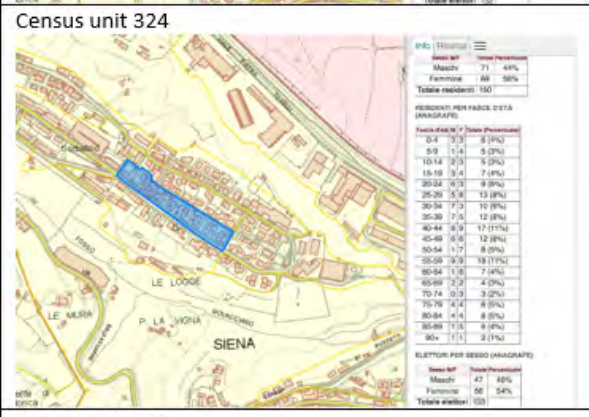
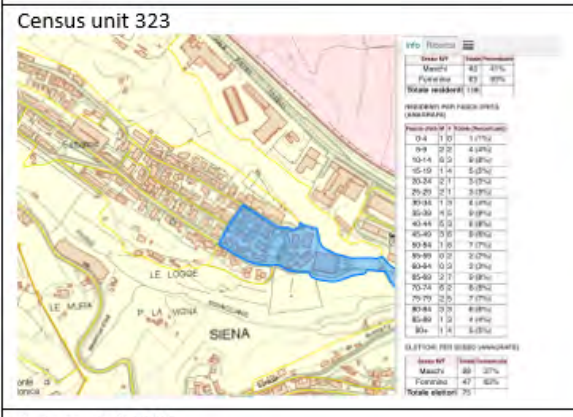
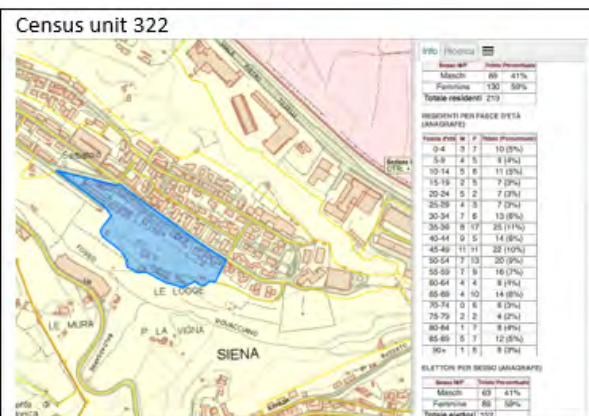
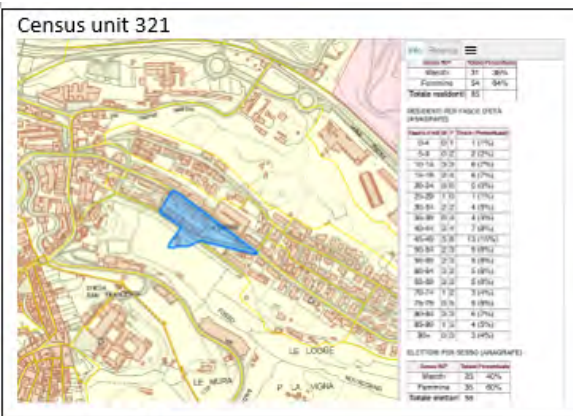


Figure 6. 54 – Number of residents per census unit and population density (colour scale) – Time series 2012-2020.

ID	area	Families	People	Male	Female	% male	% female
id.	m ²	n.	n.	n.	n.	%	%
321	12,777	47	85	31	54	36%	64%
322	32,043.00	121	219	89	130	41%	59%
323	29,139.00	47	106	43	63	41%	59%
324	11,866.00	96	160	71	89	44%	56%
325	12,312.00	50	100	47	53	47%	53%
326	27,787.00	111	227	112	115	49%	51%
327	22,251.00	74	137	59	78	43%	57%
569	7,863.00	64	128	57	71	45%	55%
570	5,863.00	33	63	27	36	43%	57%
652	20,170.00	61	146	63	83	43%	57%
72	60,905.00	20	34	20	14	59%	41%
424	238,912.00	49	81	36	45	44%	56%
425	110,925.00	44	81	35	46	43%	57%
571	12,358.00	67	109	51	58	47%	53%
TOTAL	605,171	884	1,676	741	935	44%	56%

Table 6. 19. Demographic data per census unit in the Ravacciano neighbourhood (2019).



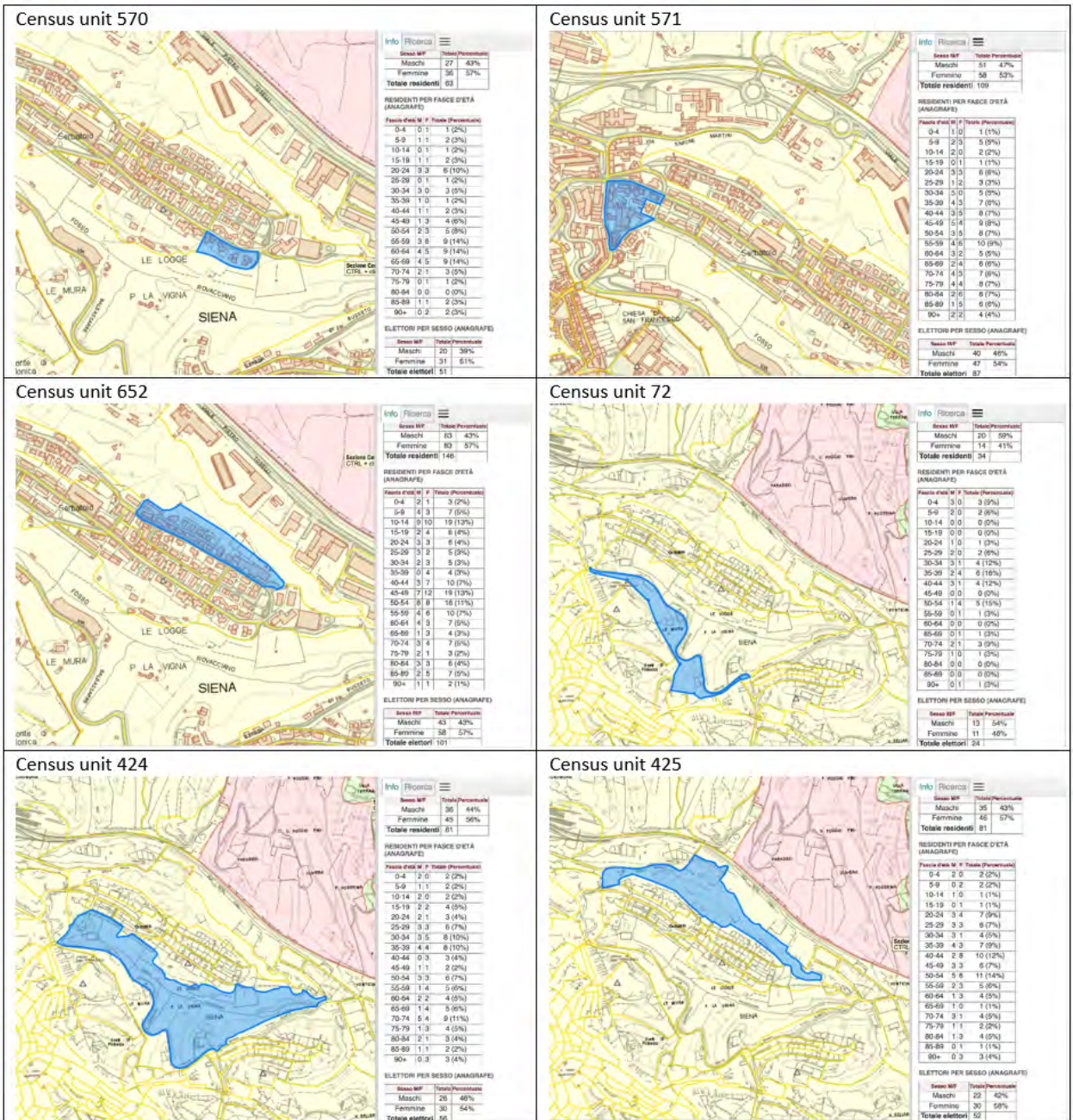


Figure 6. 55. Demographic data per census unit (2019). Source: https://siena.ldpgis.it/dati_demografico-territ

ID	Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+	TOT
321	M	0	0	3	2	0	1	2	0	3	5	2	2	3	3	1	0	3	1	0	31
	F	1	2	3	4	0	0	2	4	4	8	3	3	2	2	2	5	3	3	3	54
	TOT	1	2	6	6	0	1	4	4	7	13	5	5	5	5	3	5	6	4	3	85
322	M	3	4	5	2	5	4	7	8	9	11	7	7	4	4	0	2	1	5	1	89
	F	7	5	6	5	2	3	6	17	5	11	13	9	4	10	6	2	7	7	5	130
	TOT	10	9	11	7	7	7	13	25	14	22	20	16	8	14	6	4	8	12	6	219
323	M	1	2	6	1	2	2	1	4	5	3	1	0	0	2	6	2	3	1	1	43
	F	0	2	3	4	1	1	3	5	3	6	6	2	3	7	2	5	3	3	4	63
	TOT	1	4	9	5	3	3	4	9	8	9	7	2	3	9	8	7	6	4	5	106
324	M	3	1	2	3	6	5	7	7	8	6	1	9	1	2	0	4	4	1	1	71
	F	3	4	3	4	3	8	3	5	9	6	7	9	6	2	3	4	4	5	1	89
	TOT	6	5	5	7	9	13	10	12	17	12	8	18	7	4	3	8	8	6	2	160
325	M	0	3	3	2	2	2	3	2	2	6	3	3	4	4	4	1	1	2	0	47
	F	1	0	3	3	1	2	4	2	3	6	5	2	5	4	3	3	3	1	2	53
	TOT	1	3	6	5	3	4	7	4	5	12	8	5	9	8	7	4	4	3	2	100
326	M	2	7	6	4	5	8	5	9	7	7	7	6	5	5	12	4	7	5	1	112
	F	2	3	2	1	3	5	7	10	9	10	6	10	5	4	12	9	5	8	4	115
	TOT	4	10	8	5	8	13	12	19	16	17	13	16	10	9	24	13	12	13	5	227
327	M	4	4	1	2	2	3	6	5	4	4	3	3	3	5	2	2	3	1	2	59
	F	4	3	3	2	2	3	7	4	5	9	4	7	2	4	3	4	5	4	3	78
	TOT	8	7	4	4	4	6	13	9	9	13	7	10	5	9	5	6	8	5	5	137
569	M	1	1	2	2	2	1	4	8	2	5	5	4	8	3	3	2	1	1	2	57
	F	2	3	2	5	2	6	3	2	3	7	10	5	3	1	3	3	6	4	1	71
	TOT	3	4	4	7	4	7	7	10	5	12	15	9	11	4	6	5	7	5	3	128

570	M	0	1	0	1	3	0	3	1	1	1	2	3	4	4	2	0	0	1	0	27
	F	1	1	1	1	3	1	0	0	1	3	3	6	5	5	1	1	0	1	2	36
	TOT	1	2	1	2	6	1	3	1	2	4	5	9	9	9	3	1	0	2	2	63
652	M	2	4	9	2	3	3	2	0	3	7	8	4	4	1	3	2	3	2	1	63
	F	1	3	10	4	3	2	3	4	7	12	8	6	3	3	4	1	3	5	1	83
	TOT	3	7	19	6	6	5	5	4	10	19	16	10	7	4	7	3	6	7	2	146
72	M	3	2	0	0	1	2	3	2	3	0	1	0	0	0	2	1	0	0	0	20
	F	0	0	0	0	0	0	1	4	1	0	4	1	0	1	1	0	0	0	1	14
	TOT	3	2	0	0	1	2	4	6	4	0	5	1	0	1	3	1	0	0	1	34
424	M	2	1	2	2	2	3	3	4	0	1	3	1	2	1	5	1	2	1	0	36
	F	0	1	0	2	1	3	5	4	3	1	3	4	2	4	4	3	1	1	3	45
	TOT	2	2	2	4	3	6	8	8	3	2	6	5	4	5	9	4	3	2	3	81
425	M	2	0	1	0	3	3	3	4	2	3	5	2	1	1	3	1	1	0	0	35
	F	0	2	0	1	4	3	1	3	8	3	6	3	3	0	1	1	3	1	3	46
	TOT	2	2	1	1	7	6	4	7	10	6	11	5	4	1	4	2	4	1	3	81
571	M	1	2	2	0	3	1	5	4	3	5	3	4	3	2	4	4	2	1	2	51
	F	0	3	0	1	3	2	0	3	5	4	5	6	2	4	3	4	6	5	2	58
	TOT	1	5	2	1	6	3	5	7	8	9	8	10	5	6	7	8	8	6	4	109
TOT	M	24	32	42	23	39	38	54	58	52	64	51	48	42	37	47	26	31	22	11	741
	F	22	32	36	37	28	39	45	67	66	86	83	73	45	51	48	45	49	48	35	935
	TOT	46	64	78	60	67	77	99	125	118	150	134	121	87	88	95	71	80	70	46	1676
	%	2,7 %	3,8 %	4,7 %	3,6 %	4,0 %	4,6 %	5,9 %	7,5 %	7,0 %	8,9 %	8,0 %	7,2 %	5,2 %	5,3 %	5,7 %	4,2 %	4,8 %	4,2 %	2,7 %	100%

Table 6. 20. Population gender and age per census unit in the Ravacciano neighbourhood (2019).

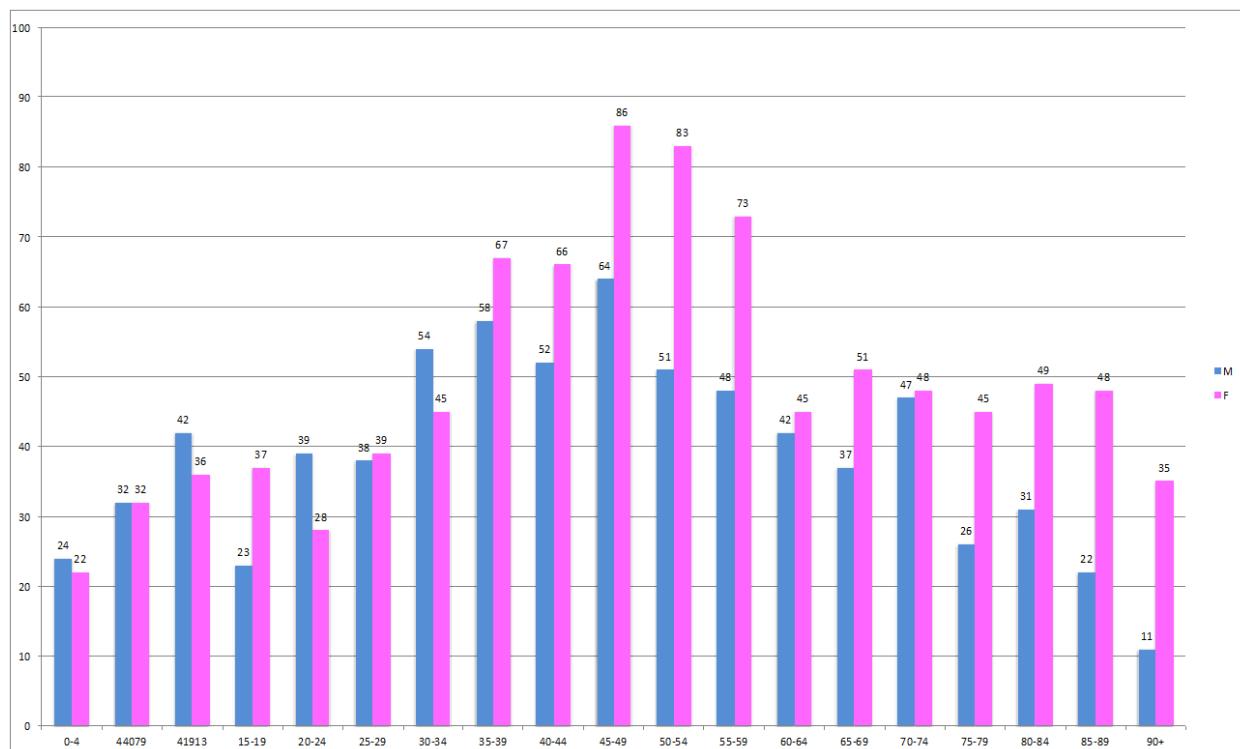


Figure 6. 56. Population gender and age in Ravacciano (2019). Source : https://sienna.ldpgis.it/dati_demografico-territoriali/

Age	M	F	Total	% age	M	F	age	% age
0-4	24	22	46	2.7%	52.2%	47.8%		
5-9	32	32	64	3.8%	50.0%	50.0%	248	14.8%
10-14	42	36	78	4.7%	53.8%	46.2%		
15-19	23	37	60	3.6%	38.3%	61.7%		
20-24	39	28	67	4.0%	58.2%	41.8%	636	37.9%
25-29	38	39	77	4.6%	49.4%	50.6%		
30-34	54	45	99	5.9%	54.5%	45.5%		
35-39	58	67	125	7.5%	46.4%	53.6%		
40-44	52	66	118	7.0%	44.1%	55.9%		
45-49	64	86	150	8.9%	42.7%	57.3%		
50-54	51	83	134	8.0%	38.1%	61.9%		
55-59	48	73	121	7.2%	39.7%	60.3%	430	25.7%

60-64	42	45	87	5.2%	48.3%	51.7%		
65-69	37	51	88	5.3%	42.0%	58.0%		
70-74	47	48	95	5.7%	49.5%	50.5%		
75-79	26	45	71	4.2%	36.6%	63.4%	362	21.6%
80-84	31	49	80	4.8%	38.8%	61.3%		
85-89	22	48	70	4.2%	31.4%	68.6%		
90+	11	35	46	2.7%	23.9%	76.1%		
TOTAL	741	935	1676	100%	44.2%	55.8%	1676	100%

Table 6. 21. Population gender and age in the Ravacciano neighbourhood. Source: Statistical Office of the Municipality of Siena (2019).

Table 6. 22 shows a set of data for the Ravacciano neighbourhood concerning energy use in households, fuel use for mobility and waste and water management. These data have been elaborated by scaling down general data at Municipal level based on population.

ID	area	People	People density	Electricity housing	Electricity tertiary	Electricity public lights	Natural gas housing	Fuel mobility	Waste housing	Water use housing
id.	m ²	n.	ab/ha	MWh	MWh	MWh	MWh	t	t	m ³
321	12,777	90	70	170	144	37	464	54	61	9,355
322	32,043.00	213	66	403	341	88	1,097	127	145	22,140
323	29,139.00	103	35	195	165	43	530	62	70	10,706
324	11,866.00	143	121	271	229	59	736	85	97	14,864
325	12,312.00	104	84	197	167	43	536	62	71	10,810
326	27,787.00	215	77	407	345	89	1,107	128	146	22,348
327	22,251.00	139	62	263	223	57	716	83	95	14,448
569	7,863.00	125	159	237	200	52	644	75	85	12,993
570	5,863.00	64	109	121	103	26	330	38	44	6,652
652	20,170.00	152	75	288	244	63	783	91	103	15,800
72	60,905.00	31	5	59	50	13	160	19	21	3,222
424	238,912.00	74	3	140	119	31	381	44	50	7,692
425	110,925.00	70	6	133	112	29	361	42	48	7,276
571	12,358.00	108	87	204	173	45	556	64	73	11,226
TOTAL	458,604	1,631	36	3,088	2,614	674	8,400	974	1,110	169,533

Table 6. 22. Set of data on energy use in households, fuel use for mobility, waste and water management in the Ravacciano neighbourhood. Source: City Minded project.

One specific focus is addressed to the neighbourhood located down the Ravacciano valley in the right side of the river, namely “Busseto, Villino, Cozzarelli”, hosting 706 people, that, even if it remains out of the case study area has relations with the Ravacciano neighbourhood (e.g., schools) and green areas. The demography of that neighbourhood is briefly described below.

ID	area	Families	People	Male	Female	% male	% female
id.	m ²	n.	n.	n.	n.	%	%
426	108297	96	217	106	111	49%	51%
427	14033	73	135	59	76	44%	56%
429	15541	54	117	48	69	41%	59%
73	9419	33	65	33	32	51%	49%
74	36230	91	172	85	87	49%	51%
TOTAL	183,520	347	706	331	375	47%	53%

Table 6. 23. Population gender in the “Busseto” neighbourhood. Source: Statistical Office of the Municipality of Siena (2019).

Age	M	F	Total	% age	M	F	age	% age
0-4	14	9	23	3.3%	60.9%	39.1%		
5-9	17	12	29	4.1%	58.6%	41.4%	117	16.6%
10-14	22	18	40	5.7%	55.0%	45.0%		
15-19	13	12	25	3.5%	52.0%	48.0%		
20-24	23	13	36	5.1%	63.9%	36.1%		
25-29	11	13	24	3.4%	45.8%	54.2%		
30-34	19	26	45	6.4%	42.2%	57.8%	256	36.3%
35-39	18	20	38	5.4%	47.4%	52.6%		
40-44	23	24	47	6.7%	48.9%	51.1%		
45-49	30	36	66	9.3%	45.5%	54.5%		
50-54	21	29	50	7.1%	42.0%	58.0%		
55-59	33	27	60	8.5%	55.0%	45.0%	177	25.1%

60-64	21	20	41	5.8%	51.2%	48.8%		
65-69	9	17	26	3.7%	34.6%	65.4%		
70-74	13	21	34	4.8%	38.2%	61.8%		
75-79	10	15	25	3.5%	40.0%	60.0%	156	22.1%
80-84	17	27	44	6.2%	38.6%	61.4%		
85-89	9	23	32	4.5%	28.1%	71.9%		
90+	8	13	21	3.0%	38.1%	61.9%		
TOTAL	331	375	706	100%	46.9%	53.1%	1676	100%

Table 6. 24. Population gender and age in the “Busseto” neighbourhood. Source: Statistical Office of the Municipality of Siena (2019).

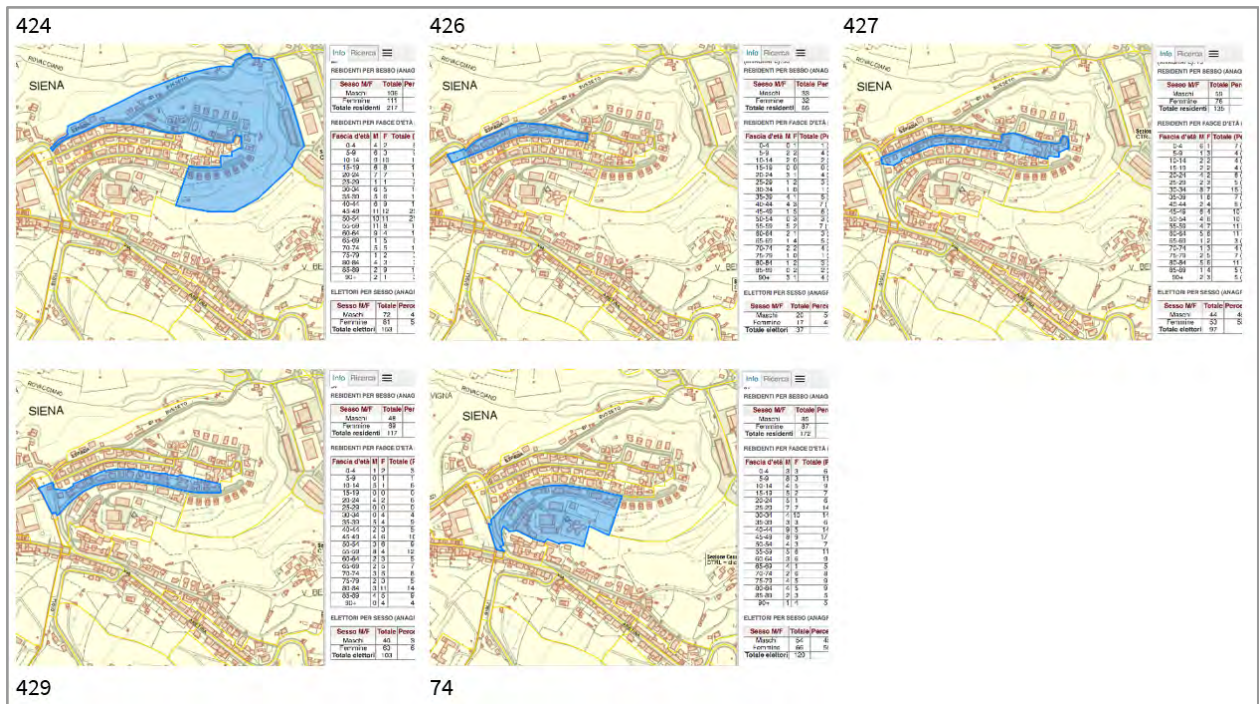


Figure 6. 57. Demographic data per census unit (2019) of the “Busseto” neighbourhood. Source: https://siena.ldpgis.it/dati_demografico-territoriali/

6.3.2.2. Participation

No specific figures for the neighbourhood. Probably similar prospects as for the cities. We do not have neighbourhood-specific data on citizen participation, although we can infer it from active volunteering and support for social inclusion.

In the second part of this report, it was possible to detect an active participation of citizens and the presence of informal groups and voluntary associations linked to both church and lay associations.

Please refer to the paragraph on Cultural Mapping for a more complete picture. There isn't specific data available about the percentage of volunteers, social connections, and inclusion rate.

6.3.2.3. Public services

In Ravacciano is directly served by two buses that cross the streets of the district, in addition to the school buses. The presence of schools is one of the main public services in the area, which is generally residential. There isn't specific data available about subjective well-being or satisfaction with public services. For more information, including descriptive information on the neighbourhood, see the section on "territorial mapping".

6.3.3. Economic description

In the neighbourhood there are no productive activities where some form of innovation or research and development can be evidenced, especially **there is no data available at this level of detail**. A more complete picture of the economic aspects is treated in the second part of the document (territorial mapping), thanks to the collection of qualitative data, a territorial analysis and comparison with citizens (focus group, interviews...).

6.3.3.1. Income and poverty

It is not possible to draw specific data on the poverty situations of households in the neighbourhood.

6.3.3.2. Innovation

No data is available for the parish level, probably because there is no evidence about this aspect. The economic activities in the neighbourhood are not particularly innovative; those present are few and mainly of a commercial nature.

6.3.3.3. Activity sectors

There is no specific data to the district, considering its size. There are no agricultural and industrial companies. The business activities belong to the third sector and are mainly of a commercial nature. Some specifications in this regard will be made in the stage 2, Territorial analysis.

6.3.3.54 Facilities

Ravacciano is mainly a residential neighbourhood; its proximity to the city centre has not made it autonomous in terms of cultural and leisure services. Nevertheless, it is important to highlight the presence of schools (from kindergarten to middle school), of a gymnasium and of a sports organisation based in the neighbourhood. There is also a music school, Diapason -Music Academy

with a private kindergarten (Baby Academy). For these aspects, too, see the second part of the report (Territorial mapping).



Figure 6. 58. services in the neighbourhood (schools and gymnasium)

6.4. Stage 2 - Local diagnostic report: methodologies

The methods used for local diagnostics were identified on the basis of the objectives of the stage 2 research, in accordance with URBiNAT protocols.

Qualitative research, carried out using six of the proposed methods, made it possible to:

- map the neighbourhood from a territorial and cultural point of view;
- make contact with the neighbourhood by identifying the stakeholders as forerunners for the organisation of the actions planned throughout the implementation of the URBiNAT project;
- involve the target citizens chosen as sensors of the main problems related to green areas (children, elderly, disabled, women);
- take into account the needs of businesses;
- attracting target groups that are more resistant to participation, e.g. young people;
- deepen some issues;
- identify the healthy corridor and the present problems and needs for regeneration.

Cultural mapping enabled us to identify the cultural specificities in the anthropological sense of

the Ravacciano neighbourhood and to check the energies present which can and can be made available to the URBiNAT project. It was carried out primarily by means of archival data, such as press articles published on the Internet, blogs and Facebook. The use of other methods also increased the amount of information. Some in-depth research was conducted through interviews to better explore links and collaborations between organisations and citizens. The objective was to reconstruct the network of actors active in the neighbourhood from the point of view of the provision of recreational, cultural and solidarity-related services, the activities carried out and the ties that characterise the community under investigation. We then tried to create a sociogram in order to identify the subjects that are currently most important for the neighbourhood from the point of view of "making community". In this sense, we asked 10 people to indicate three names that they consider most significant for the activities carried out for the Ravacciano neighbourhood and that constitute a reference for it.

The territorial investigation aimed at detecting the municipal areas on the basis of which to define the healthy corridor was carried out using the **territorial mapping method**. The variables taken into consideration were: the green areas present in the neighbourhood on the basis of the Ispra classification (Istituto Superiore per Protezione e Ricerca Ambientale) which could be connected; the private areas which could be the object of an agreement with the owners; the services present which could attract and vitalise the healthy corridor, both from the commercial/artisanal, recreational-cultural and sports points of view and from the mobility point of view. Furthermore, by means of SIT (Sistema Informativo Territoriale) and on-the-spot inspections, private cultivated and abandoned areas have been investigated which are important to allow a connection with municipal green areas along the healthy corridor in some points.

Focus group method was used to favour the participation of neighbourhood's stakeholders, representatives of associations and committees, reference figures for the role they play and representatives of the Rigenerar_si project, who have contributed so much to raising the issue of the enhancement of and access to the Ravacciano valley. It is, therefore, a "competent" group with experience already on the subject. A first focus group was the occasion to make the project known and to lay bare the main problems of the neighbourhood with regard to access to green areas. After an initial brainstorming session, a shared list of problems was drawn up. The focus seemed to be the most suitable and streamlined method of group work. Immediately afterwards, the lock-down occurred and the meetings moved online in order not to lose contact with the stakeholders, who are a source of information for the project but also an important tool for attracting citizens to the neighbourhood. In the focus groups with women and elderly people, the aim was to verify not only their knowledge and needs regarding the green areas in the neighbourhood, but also possible solutions and proposals regarding the various spaces to be connected in a healthy corridor. The professional figures who participated in the focus groups were: a facilitator who asked questions and stimulated the group to make a synthesis, an external observer with the task of summarising through key words what emerged in the meeting and a second external observer with the task of detecting group dynamics and non-verbal aspects.

Children were involved by using **photovoice method**, with specific characteristics due to the particular lock-down situation with schools closed to the outside world. Starting from this, online meetings were organised between researchers and teachers, so that the latter would be able to independently carry out work linked to the vision of green spaces with children from kindergarten, primary and secondary schools. Drawings were used instead of photos, following questions

identified together with the teachers. The children's drawings were processed by referring to the different elements that made them up, classifying them in their modes and then making frequency distributions. In addition, each teacher was asked to provide a report on what emerged in the class discussion.

Walkthrough method was reserved for young people, teachers and adults who are mainly part of the neighbouring *Contrada del Bruco*. This method was designed for young people as it is perceived as easier, less demanding and more attractive than other tools. Therefore, it was designed for a target group that was more difficult to involve and for which several attempts were made to organise dedicated focus groups, which failed. In the case of teachers, on the other hand, the walkthrough had the sense of deepening issues that had already been addressed in an online meeting, related to green schools and outdoor learning spaces. Finally, the walkthrough with the adult citizens was dedicated to the *Contrada del Bruco* who, during the course of the research, expressed their interest in expressing considerations on the regeneration of the north valley. The walkthroughs from the point of view of conduction were assisted by an architect from the town planning office of Siena's Municipality for technical questions from the participants and by several researchers to stimulate them to provide considerations on the various points of observation of the walkthrough. The tools prepared were those suggested by the protocol: questionnaire and picture of the walk. The open-ended questionnaires were collected at the end of the walk.

Finally, **face-to-face interviews** were dedicated to the entrepreneurial activities present in the neighbourhood to find out their considerations on urban green areas as a resource for their activities. At the same time has been verified the availability of these businesses to contribute to the realisation of projects to enhance the neighbourhood through the development of NBS.

6.4.1 The first stage of the Local Diagnostic

In Local Diagnostic Stage 1, the structure and characteristics of Siena are outlined through a series of data that place the city in the provincial and regional context (especially regarding economic and socio-cultural aspects) and helps to identify the guiding elements for the creation of a healthy corridor in the study area.

Analysis of the present data has allowed us to "photograph" Ravacciano's neighbourhood, our study area, above all from a demographic and structural point of view; **the lack of specific data on economic, social and cultural aspects** (due to the small size of the neighbourhood) required a more in-depth examination of these elements in this second part, especially in the section on Territorial Mapping. Many aspects were highlighted and identified thanks to observation of the neighbourhood, interviews and data available on the web.

Local diagnostic stage 1 was, instead, particularly useful in reconstructing and mapping the projects proposed or partially realised in the study area (Ravacciano' Valley). This work is based on documentation existing in the archives of the Municipality of Siena or reconstructed thanks to the research of the Rigenerar-SI group (A group of associations, with technical skills, that has been studying Siena's valleys). The analysis of the Valley also allowed for the definition of limits for future planning, relative in particular to private properties and the difficulties of accessibility to green areas. Socio-demographic characteristics of the neighbourhood (a residential area, with a strong

presence of school facilities and with a demographic trend that tends towards ageing) led us to think about **the need to identify green spaces, easily accessible and usable even by the "weak" or with more difficult categories of the population:** playgrounds, sports areas or areas dedicated to socialising.

These elements were the starting points for the design of the research on the Ravacciano neighbourhood, which also defined the choice of priority targets to be involved.

6.4.2 Design of the research plan for the second stage of the follower cities' local diagnostics

The Research plan focused on the green spaces of Ravacciano, in order to explore how stakeholders and citizens experience them in daily life, to map their location in the different points of the built-up area and understand if and how much they are attended. Some green spaces are interiors along the roads of the district, others outside in the Ravacciano Valley which overlooks the town and divides the study area from the historic centre of Siena. A stretch of the ancient walls and the magnificent complex of the S.Francesco Church appear at the horizon.

In this second stage of the co-diagnostic, the object was **to investigate**, through the perceptions, needs, desires and dreams of the various population' targets, **the multiple dimensions and functions** – some positive and others critical – **which green areas are taking on the life of the neighbourhood and its inhabitants, of individuals as well as of the community.** Participatory engagement took into account various aspects to outline a complex picture, with many faces:

- **territorial dimension.** Knowing what are the different types of green in the neighbourhood, what is their maintenance, how they are distributed in the space; understand if the streets are flanked by trees, if there are green pedestrian paths, equipped or informal gardens, also unused or uncultivated spaces, but also inaccessible spaces... *The result is a mapping of the green areas* (drawn by the citizens) which at the same time interacts with the plot of the streets of Ravacciano, their practicability and the mobility of the inhabitants.
- **cultural dimension.** Investigating the use of green spaces, means seeing them integrated with the life of inhabitants, as the social characteristics of the community are outlined, the texture of relationships and meeting places (if any), social and cultural networks, participation experiences lived by the different actors, starting with school-age children.
- The frequency of green areas makes us understand how much age, gender, employment, the presence of young children (**social demographic dimension**) diversify the perceptions of the inhabitants, their experience and needs related to natural environments; without neglecting fragile and weak people, and the possible risks of social exclusion.



Figure 6.59 Ravacciano Valley.

In summary, the main objective of this second stage was **to activate the participation of stakeholders and citizens to create awareness and engagement of the various actors in order to promote actions aimed at identifying the available green areas in the neighbourhood and those unavailable** (Ravacciano' Valley, Bosco di Busseto), and then to grasp the need to redevelop them, to systematize and connect them together. At the same time it was important to insist on the necessity to regenerate public spaces in charge of local institutions (Municipality) and to urge the responsibility of private owners, so that a wider and better frequency translates into opportunities for socializing and improving individual and social life in Ravacciano.

Therefore, various qualitative methods have been adopted and it was worked on in a cultural dimension, which brings urban green spaces and greenery up to a sustainable life by responding to different needs and dreams of the inhabitants: **children, young people, adult women with children, adults men and the elderly, people with disabilities.**

It can be said that the participatory activity has shown how citizens and stakeholders are imagining a city where green spaces are connected and integrated to create a healthier and more beautiful environment both to be enjoyed in informal sports and walks, both to offer opportunities for better relationships, while people are currently conditioned by inadequate and badly kept public spaces or, even worst, not at all usable as the magnificent, mainly private, Ravacciano Valley/Follonica.

The set of qualitative methodologies adopted was:

- Walkthrough n. 3 (with adults, youngs and teachers)
- Cultural Mapping
- Photovoice: children and teachers of elementary and middle school
- Focus Group:
 - 3 Focus groups with stakeholders, in plenary; a closed group was also created to feed the relationship with stakeholders. In addition, it has been foreseen their involvement for all the living lab initiatives (technical meeting, webinar, organization of the participatory process);

- 1 Focus group with adult women with children;
- 1 Focus group with aged people;
- 1 Focus group with teachers of kindergarten, primary and secondary schools (online)
- 1 Interview with a disabled person.
- Face to face interviews (companies, responsible for “*Contrada del Bruco*”);
- Territorial Mapping
- Neighborhood Survey. In Siena, it was decided to postpone the implementation of the questionnaire at a later stage, both for organizational reasons and because of delays due to the Covid context. The method will be tested in the next stage with the possibility of customising the questions by adding some specific ones for the local context.

The research in its different phases was supported by the internal working group of the Administration and in particular by the technicians of the Urban Planning Service. This service has been involved from the beginning through meetings both in presence and online. In addition, three webinars were organised in December 2020, addressed to the internal working group of the Administration and to the stakeholders, in which subjects who had produced projects on the study area in various capacities took part. One of the webinars was assigned to the Urban Planning Service, which presented some projects on the Ravacciano district, concerning mobility and green areas. Moreover, the research design foresaw the involvement of the Urban Planning Service technicians for urban walks and meetings with stakeholders, in order to guarantee technical support.

Impact of Covid -19 on the activities

The participatory activities, scheduled for spring 2021, were strongly affected by the restrictions due to the Covid 19 pandemic, so most of them were postponed to June and September, when attendance was allowed (focus groups, interviews, etc.). The inability to enter schools forced them to readjust the planned photovoice with children; therefore, the teachers, appropriately “educated” and provided with tools, worked with young scholars, who were passionate and produced a lot of graphic material and answered questionnaires.

Furthermore, in April and May, activities were carried out to share and deepen the URBiNAT themes with stakeholders and citizens. The Municipality of Siena, in collaboration with the University of Siena, organised **nine webinars** on URBiNAT's themes and objectives under the title "**Sustainable Declinazioni. Paths, meetings and reflections on environmental, social and economic sustainability**". Experiences and good practices were presented by national and international experts and compared with local experiences. A way of offering new points of view for the construction of a future based on innovation that starts from nature and the strength of communities.

Three thematic strands were discussed:

- Cities (experiences of urban regeneration and land management)
- Citizens (participation and co-design starting from the needs of the most fragile)
- The tools (new sustainability tools involving citizens, public administration and companies)

The webinars were at the same time an opportunity to learn about and reflect on the link between sustainable use of urban and green spaces, cultural regeneration initiatives, and the active participation of citizens' associations (NBS).



Figure 6. 60. Identifying graphic image for the webinars cycle.

These are the webinar titles, broadcasted on the social channels of the Municipality of Siena and archived on the website www.URBiNAT.siena.it:

- Regenerating a neighbourhood starting from agriculture
- The gendered gaze on the city
- Pacts of collaboration and common goods
- Urban regeneration starting from culture
- The challenge for carbon neutrality and sustainability of cities
- Civic crowdfunding: when the community supports social and cultural projects
- A Suitable City for the elderly
- Corporate Social Responsibility of companies and a new sensitivity to the care of the territory
- Friendly Cities to children and adolescents

The results carried out from the various activities, participation, perceptions, experiences, dreams, and suggestions linked to the territorial mapping of green spaces, both accessible or not, are detailed in the following paragraphs and feed the co-definition of NBS in the study area.

6.4.2.1. Walkthrough

Given the purposes for which this methodology is used, the walkthrough was aimed at specific targets of citizens of the study area, who were involved in a friendly and warm way so that they expressed in situ their opinion and vision about some places.

The **goals** were:

- 1) to establish an itinerary that touches some green areas that have already emerged as important in the experience of the different targets involved;
- 2) to know the observations of the participants on the current condition of those areas;
- 3) to stimulate ideas on how to redevelop them, both orally in situ and in short notes written on a card delivered at the beginning.

The **questions** asked for each step of the route were:

- What strengths does this area/place present?
- What are the weaknesses?
- What ideas and interventions are desirable to redevelop in perspective?

Three walkthroughs were organized aimed at three targets: adults, young people 20/25 years old, teachers of elementary, middle school and kindergarten. Each group was accompanied by the research team on a specific itinerary for the duration of about an hour and a half.



Figure 6. 61. 3 routes: yellow - walkthrough with adults, blue - walkthrough with young people, red - walkthrough with teachers.

A. Walkthrough with adults.

7 participants, including two retired and a teacher (woman), living in Ravacciano or near Porta Oville (Contrada del Bruco) which borders the study area. The route, starting from the Fonti d'Oville, has

been centred on the northern part that looks like a completely unused green resource (see yellow track).

First step: Fonti d’Ovile and adjacent sports field

Everyone agrees in deploring the totally abandoned area, the sports field unused for many years, the closure of the changing rooms, the not easy access via a staircase (weaknesses). Strengths are: the very suggestive medieval source, the proximity to the historic centre, the sports facilities. Unanimous is the opinion that the site remains pedestrian, assuming it will become an area for picnics and games for children, or for cultural events such as concerts. To bring it back into use, to provide cleaning, lighting installation, control of the wall parts, rearrangement of the sports field and changing rooms must be done (in perspective).

Second step: via Valdambrino

Since the street is in the privileged position of overlooking the Valley and seeing beyond the city walls and the complex of the church of San Francesco (strengths), the participants complain the uneven sidewalks, the intrusive presence of parked cars and other obstacles such as garbage bins on the sidewalk that make it uninviting to walk the street (weaknesses). Everyone supports the idea of using a part of the road soil and removing obstacles to build an urban pedestrian path, then to make a missing connection with the Fonti d’Ovile that are at the bottom of the Valley (in perspective).

Third step: Ravacciano’ Valley

Everyone admires this "green lung" for the beauty, extension, richness of plants even if almost all crops are abandoned (strengths), but access is denied by private owners who are the majority, while the Municipality owns small portions (weakness). The green should be cleaned up, because it has grown since the cultivation ceased; urban gardens, pedestrian accesses and a cycle path already designed but not built should be created, because *"it would be a pleasure to see this area exploited and clean"* (in perspective).



Figure 6. 62. Walkthrough with adults.

B. Walkthrough with young people.

8 participants of 20 to 25 years old (5 males and 3 females) were engaged in a path that touched places frequented by young people in the quarter (see blue track).

First step: the place in front of Mattioli school, including the basketball court and an area for meetings equipped with wooden tables. Sorry that the maintenance is poor, little cleaning, the scruffy furnishings (weakness), because it is a place frequented by children not only of the neighbourhood, also the adults of the Ravacciano committee organize meetings and picnics (strength). But, everyone agrees, it is necessary to clean up, put a fountain and some green in the area and, the girls add, more lighting to improve livability in the evening. The basketball court should be redone by removing the concrete for an eco-sustainable permeable pavement, changing the fence net, and placing new benches (in perspective).

Second step: Arci club, a place of aggregation, cultural and solidarity activities, a bar in the main street of the neighbourhood. Almost no young people attend it, because it is seen as a meeting place for the elderly and although this is considered a positive fact, young people move away (weakness). Although the interest in this place is limited, someone would like the bar to be modernized and frequented by all the inhabitants, since in Ravacciano there is no longer a public exercise (in perspective).

Third step: church of S. Maria Immacolata all'Alberino, which has a football field (private) and a green area in front with a cedar of Lebanon and seats. The young people appreciate the football field and the square in front (strength), but complain about the poor lighting, a certain carelessness, the lack of a fountain and comfortable benches (weakness) to make it a more frequented place (in perspective).

Fourth step: via Valdambrino and the Valley. Even young people recognize that the road is very beautiful for the view offered, but the asphalt and sidewalks must be redone and it should be a smaller number of cars parked.

Fifth step: Fonti d'Ovile and sports facilities. Despite being an important historical place for the city (strength), it is totally abandoned, "not visible even in the maps of the city" (weakness). It would be nice, they say, if it were redeveloped, cleaned up, rearranging the playing field and the access stairs, thinning the greenery, more lighting, so that it becomes a leisure resource both for the inhabitants of Ravacciano and for other neighbourhoods (in perspective).



Figure 6. 63. Walkthrough with young people.

C. Walkthrough with the teachers.

The group was composed of 12 female teachers and 1 man, aged between 28 and 59; 3 work in the kindergarten, 5 are elementary school teachers, 5 teach in the middle school. These were people already informed about URBiNAT's goals, having worked with the children when the school was closed for the URBiNAT team (see photovoice). Therefore, they were very interested in how the external environments of schools can be improved for school use together with some places usually attended by schoolchildren in the neighbourhood (see the red path).

First step. The walk started from the Montagnani gardens.

Unanimous was the complaint of poor maintenance and cleanliness also for the presence of dog drops (negative factor), while it is the only place equipped and safe for small children who find here some games (positive factor). The request is to increase maintenance, add other games such as swings, a fountain; moreover, the degrading lawn next to it should be arranged to allow physical education activities to middle school students, as happened during the lockdown (in perspective).

Second step: Simone Martini elementary school.

The problems highlighted by the teachers concern the use of the courtyard for school purposes. They confirm the importance of the outdoor space for teaching, and the courtyard is necessary to refresh the children in the middle of the morning; they are about 160, therefore the space has been left rather free for not organized play (positive factor). However, the gravel on the ground produces dust and puddles with the rain, while with the sun is insufficient the shadow produced by the 3 cedars and other smaller trees. (negative factor). The requests therefore go in the direction of having more shade or with some suitable tree or with a gazebo for outdoor teaching; in addition, a platform would be useful because it allows reading and other activities. The teachers are also interested in feasible spaces for vegetable gardens and gardening, activities that perhaps could be done in a corner of the courtyard with the presence of a water source. There is also a mention of vertical structures for vegetable gardens and planters and the question of the maintenance of greenery in the summer is insistently raised (in perspective).

Third step: garden at the basketball court in front of the schools.

This space is a real appendix of the Mattioli middle school, widely used also because it is safe (positive factor), but it is very neglected and it is not easy to cohabit with others who use it for parties

and more; it should be redeveloped with greenery and with additional furnishings such as bicycle racks, a fountain (in perspective). Similarly, the basketball court needs a review regarding pavement, baskets, nets and benches. The teachers of the Pestalozzi' kindergarten have a close collaboration with families for green activities, for example during the tree festival, for the seedlings used for gardening. For their outdoor activities they would need a cover for which they are looking for funds.

Fourth step: the Valley and the "lost" path. The request of all is that it would be very useful a path or "neighbourhood" pedestrian road descending from the area behind Mattioli' schools into the valley, to cross the small ditch and go up on the other side to the wood of Busseto. This would benefit schoolchildren living in this area who could go to school on foot instead of by car as it is now. At the same time, it would allow the school's students to access the vegetable gardens that have been assigned for an "outdoor teaching", but without a road to access them except by taking a long ride from via Peruzzi, very uncomfortable. Two traces in the valley seem to testify to the past existence of a path, but the project of restoring it involves a difficult agreement with the private owners. However, it is a NBS that all the community of Ravacciano hope for.



Figure 6.64. Walkthrough with the teachers.

6.4.2.2. Cultural Mapping

The cultural mapping was carried out through the information collected throughout the research, with targeted in-depth analysis through **interviews** and **articles** published on the internet as far as they refer to the period 2014-2015. However, the picture drawn does not seem to differ much from what has been observed today.

The variables of analysis are those borrowed from anthropological research, in particular the concept of culture as a system of meanings and values that guide the behaviour of a community. At the same time, culture is also understood as history, *"that is, the progressive and selective accumulation of meanings (of values, of orientations, etc.), which are unitarily and pluralistically interpreted and continually verified in the dialectic relationship with the daily practice of the present"*

and with strategic elaboration¹⁰. In this sense, culture is not the result of something that has already taken place and is unchangeable, but it is a planning, reflective and voluntary activity, which can give rise to iterative experiences, capable of transforming themselves into meanings, systems of meaning, values, and cultural norms. As far as the URBiNAT Siena project is concerned, **cultural mapping has enabled us to understand what the energies of the neighbourhood are** in terms of participation in and organisation of social, cultural, and environmental events, and how these energies are the expression of a value system which has been structured over time. This is a theme that we consider important for the future of the healthy corridor, its management, and its development.

Starting from this, the objective was to **reconstruct an "historical" image of the neighbourhood** by using what has been published on the Internet and interviewing some privileged witnesses; **define some aspects of today life**, especially as regards organised social life through the neighbourhood's associations. Specifically, a reconstruction was made of the associative activities operating in the neighbourhood today starting from their mission, the activities undertaken in the period 2019-2021, and the number of associates.

Finally, a sort of sociogram of the community was attempted by asking 10 people who, according to them, are the figures that today represent the glue of the Ravacciano community. The work carried out allowed the elaboration of hypotheses that should be better verified through quantitative research.

a. The image of a recent past¹¹

Ravacciano between the seventies and the first half of the eighties, is described as a popular place, *"such as to contend with the northern suburbs (Petriccio in particular) for the - affectionate, and largely ironic - prize of the 'Bronx of Siena'. [...] There was an air of genuine working-class suburbia, vaguely Pasolinian, with a feast of Unity in the aforementioned gardens: it was poor (but more than dignified), but beautiful (perhaps not even too beautiful, if you look at some of the photos of the time, now on display in a small exhibition in the premises of the club Arci).*

Apart from a series of popular characters, particularly shopkeepers, who contributed to giving colour to the neighbourhood, the central figure and reference point for the community of Ravacciano in those years was Fr. Francesco Lorenzetti, parish priest for 37 years (from 1949 to 1986) at the Alberino' Church. The parish of Alberino is described as the aggregative centre of that time.

"Don Fra was a myth, and next to him he had Fr Roberto, a priest too far ahead to get along with this curia. Fr Roberto traded in his sports car for a minibus that took us everywhere. (Susanna Guarino-

¹⁰ Donatella Radicchi, *Cultura d'impresa e gestione del cambiamento: analisi e riorientamento dei valori e della cultura organizzativa*, Gentes, anno I numero 1 - dicembre 2014, *Strategie e pratiche delle culture contemporanee*

¹¹ -Passeggiate senesi (III): Ravacciano <http://www.ereticodisiena.it/2014/09/18/passeggiate-senesi-iii-ravacciano/>
-Ravacciano, una realtà tutta da scoprire <http://www.scopriresiena.it/ravacciano-una-realta-tutta-da-scoprire/>
-Ravacciano, gruppo di amici si rimbocca le maniche. Adotta campetto e giardino <https://www.lanazione.it/siena/cronaca/ravacciano-amici-campetto-1.1294681>
-<https://ilsantodisiena.com/2014/02/27/la-rubrica-dei-disastri-il-campo-di-basket-di-ravacciano-abbandonato-una-vergogna-a-cui-don-brunetto-deve-provvedere/>
-<https://www.comune.siena.it/La-Citta/Comunita/Beni-Comuni/Patti-di-Collaborazione-approvati-dalla-Giunta-Comunale/Comitato-di-Ravacciano>
-<https://www.rigenerarsi.eu/wp/zona-pilota/>

local journalist). [...] *I remember there were as many as twelve shops (butcher's, tobacconist's, grocer's, dairy, fishmonger's, paint shop, clothes shop...), a bowling alley and, at the time, our meeting place was "La Buca del Rospo", officially called Circolo Aurora, in via Valdambriano, transferred to its current location in 1967. [...].* The social aspect contributed by the neighbourhood shops, some of whose owners are remembered as real characters of the neighbourhood, seems to continue until the 80s.

Some people considered it a small autonomous state until the mid-90s. We also had a post office and pharmacy, a cobbler, bars, greengrocers, butchers, grocers, everything in the plural. There was no shortage of characters with whom to spend a few minutes in serene conversation. Aurelio Rosini, known as Ruglie, was one of them.

In Ravacciano in those years there was also the Cinema "*which later, after being a school, became the offices of Monte dei Paschi*". The use of the countryside was certainly free and unstructured "*[...] at the end of Via del Vecchietta there was no [...] at the end the road became a dirt track, and you entered the woods... and for us, children, it was an adventure outside the door of the house, you could imagine being Sandokan in the middle of the jungles of Borneo or an American soldier hunting Germans. I remember that we used to go as far as the Riluogo stream, at the end of the valley [...] And before the woods, where there is now an asphalt basketball court, there was a little field where people from all over the neighbourhood came to play football*"¹².

b. Today's picture

Those who lived in Ravacciano in the 70s and 80s and who described it then as a lively neighbourhood with a strong identity, today describe it as "*a neighbourhood where life goes on quietly*", perhaps even too quietly: there are few shops (*not even a grocery store!*), the feeling of a reduced sociability, perpetuated only by the ever-present outpost of the lay Church (the Arci club) and the religious Church (the parish of Alberino). Some people think that the parish priests who succeeded Fr Francesco have not been able to pick up the baton and tell of how the social aspects of the neighbourhood have changed.

"By the early 1980s the situation had changed. Roberto was no longer a parish priest and there were only a few of us left. Many shops had already closed and the large lawn, which reminded me so much of Gianni Morandi's song, had given way to the construction of the new school. But there was still a way of living on the street, with lots of old people chatting on benches or in chairs brought from home. When I left, ten years later, many old people had died, and their houses had been filled with students. A dormitory without a soul. [...] Father Francesco filled the church and there was life and joy around him. Now they tell me that attendance is very poor, and the masses are a desert".

So much did this figure mean to the neighbourhood that on 18 September 2021 the mortal remains of the parish priest Francesco Lorenzetti were brought to the Church of the Immacolata at Alberino to be placed under the altar of the Sacred Heart. For this purpose, a promotional committee has been set up, formed by those who knew Fr Francesco and were 'his boys'. Not everyone agrees with

¹² Marco Burrioni, *Ravacciano, una realtà tutta da scoprire* <http://www.scopriresiena.it/ravacciano-una-realta-tutta-da-scoprire/> 2014

the idea that Ravacciano is now a dormitory district with its engines turned off; an image that comes above all from those who were young in the 70s and 80s.

One citizen, who is an expression of the many who collaborate in the activities of the associations and committees present today, tells it very clearly.

Ravacciano today is not a dormitory neighbourhood; there are local associations which, thanks above all to the active citizenship existing in the area, have succeeded in recreating true realities of socialisation and interculturalism. Last June, through the Circolo Arci and the Gruppo Sportivo Alberino, we managed to organise a nice football match and subsequent dinner between the "kids' bands" of Ravacciano (they always exist!) and the Saharawi children, who are given hospitality every year by the Pubblica Assistenza in Viale Mazzini. The Club also organises voluntary work and activities to promote cohesion between children and the elderly: teaching children how to make biscuits or pizza, Christmas bingo, snacks together after school [...] the Campino at the end of Via del Vecchietta is in any case a place of "social refuge": from neighbourhood dinners, to basketball games, birthday parties, and "giochi senza contrade" (from the sack race to the poisoned ball to the "morra cinese", etc.) conceived and organised by the citizens for 2 years [...]. At Mattioli' Gymnasium, for three years now, there have been play and exercise courses for children and courses for mothers [...], the latter created by citizens with the fundamental help of the Alberino: furthermore, if you like sport, come and try kung fu or tai chi chuan with a Ravacciano native. And yet the municipality has taken away the games for the youngest children from the playground [...] perhaps in this he is right, Ravacciano is still considered a 'Bronx' [...].

(Source: Eretico Siena Blog, <http://www.eticodisiena.it/>)

To reinforce the testimonies of the citizens, we should mention the work carried out by the associations:

- The **Circolo Arci**, which has a hardworking group of volunteers coordinated by its tireless president Miranda Ballini, is today a leading association capable of dialogue and teamwork with other organisations in the area. *"About four years ago, I approached the Club with the intention of revitalising a context that had already died out - says Miranda - humanitarian events, the involvement of voluntary associations, recreational entertainment for children and the elderly in the neighbourhood: this is how I turned the environment around, recreating a family atmosphere that had been lost"* (Source: Ravacciano, una realtà tutta da scoprire

<http://www.scopriresiena.it/ravacciano-una-realta-tutta-da-scoprire/>)

- **Ravacciano Committee** is responsible for the maintenance of the area known as the *Campino* (Basketball court) and which belongs to the municipality. In an interview published in LA NAZIONE (local newspaper) in 2015 the then President Giacomo Paciotti said:

"It was a team effort ... which made it possible to have a barbecue like the ones in Pescaia (another city's neighbourhood). Everything was done with our own resources, either by self-taxation or by obtaining the collaboration of people who appreciated the initiative".

Dinners were organised here, films were shown during the summer season with a white sheet placed on the wall inviting the community to attend. Everyone brought a chair from home. The article went on to highlight an important aspect, perceptible throughout the research, both in the

relationship with the citizens affected by the various methods and from observation in the field: a sense of active citizenship and convivial spirit, matured in contrada life.

"Many of us are contradaioi. I belong to the Lupa, but there are also people from Selva and Montone, for example. It's in our DNA to leave the buildings and meet in the streets to talk and exchange ideas. Simply to share".

- **Alberino Sports Group**, founded back in 1949 as the third football club in the city of Siena, with a history rich in testimonials and sporting and social successes.

In order to deepen certain themes or simply to find confirmation of them, an interview was conducted with Francesco Burroni, an actor and writer well known in the town, who grew up in Ravacciano and is the author of the book *L'arrivo della primavera* (The Coming of Spring), where, in a short story, he describes the Ravacciano of his childhood. The interview confirmed many of the aspects described above. In particular, it shows a very different neighbourhood life from now, in which the parish played a central role until the 80s.

"Fr. Francesco organised trips, lunches and dinners [...] the parish field was always open [...] Life in those days was very much outdoors and the neighbourhood was full of young people, unlike now, where people spend a lot of time at home. The Circolo Arci didn't have today's character, it wasn't as lively, its headquarters were at the end of Via Valdambrino and it was called Circolo Aurora, known as Buca del Rospo. There was also the wine shop, which was another meeting place. In the neighbourhood there was an air of contrast in full Peppone and Don Camillo style¹³".

Now there is no longer a clear contrast between those who frequent the parish and the Circolo Arci, once a metaphor for different political ideas. The parish is no longer as central as it once was, while the Circolo Arci, with its current president, has had a great boost. The change has also led to greater collaboration between the two, with the organisation of joint initiatives.

The social composition of the neighbourhood has also changed: there are a lot of non-resident students renting houses in Ravacciano, as well as the arrival of young couples. In spite of the initiatives present, according to Burroni, there is no real neighbourhood life in Ravacciano. Young people do not frequent the neighbourhood a lot and this was also highlighted during the urban walk with young people: when you are no longer a child, the horizon becomes the city. It was important through this interview to understand the use of green spaces in the past and today, in the view that the redevelopment of public spaces must be carried out in relation to the history and identities of the territories:

"When I was a boy we used to go to the little wood of the Cicogna, which was located between via del Vecchietta and Viale Toselli artisan area (at that time it wasn't an artisan area); in Busseto we never went and the valley in front of Via Valdambrino was forbidden [...] if anything we went to the Logge[...] The playgrounds were the Parish and the Montagnani gardens. There has always been this paradox:

¹³ Don Camillo and Peppone are the fictional protagonists of a series of works by the Italian writer Giovannino Guareschi. In the post-war years, Don Camillo is the hotheaded priest of a small town in the Po valley in northern Italy. Don Camillo is constantly at odds with the communist mayor, Giuseppe Bottazzi, better known as Peppone. The tensions between the two characters and their respective factions form the basis of the works' satirical plots. Despite constant fighting based on political ideologies (Communist and Catholic), what Peppone and Camillo have in common is an interest in the well-being of the town.

a neighbourhood surrounded by greenery, where there were farmers, but where green spaces were not very accessible". (Source: Francesco Burroni's interview)

Among today's energies, it is worth highlighting those of the RIGENERAR_SI project, which is the result of an important local partnership and which has studied, designed and finally restored a part of the Ravacciano Valley in the southern area, both wooded and agricultural. The area is both public and private. The agricultural part has been made available for the creation of urban gardens by schools and citizens. An important element that characterises the neighbourhood today, compared to yesterday, is the presence of a large school population, in relation to the size of the neighbourhood (kindergartens, primary and secondary schools). The school is a hub of energy and a very important driver for the regeneration of green areas. A final aspect is the proximity of this area to the Contrada del Bruco and the Contrada della Lupa interested, especially the Contrada del Bruco, in the northern regeneration of the Valley.

Some data

In relation to the mentioned associations, research was carried out in relation to:

- type of initiatives produced in the period 2019-2021
- number of members.

The initiatives were mainly found on the facebook associations' pages, sometimes enriched by observation in the field and by interviewing privileged witnesses.

CIRCOLO ARCI RAVACCIANO

The initiatives carried out by the Circolo Arci Ravacciano have been classified as cultural, recreational and solidarity-based. It is obvious that in the last year and a half solidarity initiatives have taken the upper hand. Observation in the field and the interview with the President of the Club also revealed other activities: support for economically weaker families of an educational nature (free of charge and managed through voluntary work), homework support, musical activities for children, occupational activities for young people in difficulty.

Mention should also be made of the SOLID COMMUNITIES project in which the Circolo Arci, the Ravacciano Committee and the G.S. Alberino participates together with other associations.

<http://www.lacortedeimiracoli.org/progetto-comunita-solidali/>

The members of the Circolo Arci Ravacciano are about 120.

EVENT 2019-2020-2021

CULTURAL EVENT	RECREATIONAL EVENTS	SOLIDARITY-BASED EVENTS
2021		
book presentation "A Siena ci sono le donne" by Patrizia Turrini	social dinner	Charity market
book presentation "La Pacchia" by Bianca Stancanelli	Dinner with Giulio Stracciati and his guitar	preparing meals for the neighbourhood
	performance and dinner with Francesco Burroni	on line meeting - "Comunità Solidali" project

	breakfast with kindergarten children who contributed to the solidarity shopping	solidarity shopping with the Lions group
		Epiphany stockings in cooperation with the "Associazione Culturale Crea e Dimostra".
2020		
	cena con i giovani rifugiati dal Pakistan	Unicoop Firenze: donation to the solidarity desk
URBINAT Meeting	carnival dinner	Solidarity shopping contribution: fruit and vegetable stall in Montagnani gardens and fish stall in largo Sassetta
#Earth Day. Standing by the Palestinian people		
2019		
NO ROGO - books presentation	new year's eve dinner	charity market
	Christmas greetings dinner	
	"An evening at Cafiero's tavern" dinner and songs	
	fundraising dinner for the club's new kitchen	
	Dinner to remember Pio La Torre's commitment against Mafia	
film projection	Easter lunch	
Meeting to talk about scams with Dr Enzo Tarquini.	carnival dinner + music	
"Partisan lessons": meetings on the past to interpret the present.		
Meeting with citizens to learn more about the use of the health card		

Table 6. 25. List of events of the Circo Arci di Ravacciano. Source: Arci Facebook page 2019-2021

RAVACCIANO COMMITTEE

It was created in 2015 by a group of friends living in the neighbourhood, who had decided to "adopt" an abandoned public space, the "Campino", to take care of it by regenerating it from a functional point of view and through the organisation of events. In 2015, the Collaboration Pact between the Municipality of Siena and the Ravacciano Committee was signed in accordance with the Regulation of Common Goods of the Municipality of Siena for the development of the Ravacciano basketball court area and adjacent gardens" (Deliberation of the Municipal Council no. 295 of 12/08/2015 and subsequent acts).

The members participating in the Committee are 36 who are in constant communication in a WhatsApp chat.

EVENTS AND ACTIVITIES

COMMON GOODS MAINTENANCE	RECREATIONAL EVENTS	SOLIDARITY-BASED EVENTS
Grass cutting in the green area under agreement	"Apericinema": aperitif with film screening at the grass field	Ravacciano Insieme a Tavola: cumulative food orders to help catering activities
Contribution to the cleaning of neighbourhood streets from weeds, papers etc.	Dinner with "braciata" at the basketball court at the beginning and at the end of summer	Collaboration with the Ravacciano ARCI club to collect groceries for the needy
	Collaboration with the Pestalozzi kindergarten for the end-of-year party (games and refreshments)	Participation in the Comunità Solidali Project (neighbourhood concierge) to transform the neighbourhood into a community of people who help each other according to their knowledge and professionalism.
	Creation of a neighbourhood Christmas tree (with breakfast) with the participation of the parish of Ravacciano and the children of G.S. Alberino	Organisation of a snack at the Montagnani Gardens with a magician's show.

Table 6. 26. List of events of the Ravacciano Committee. Source: interviews to the President

ALBERINO SPORTS GROUP (Alberino GS)

The Gruppo Sportivo Alberino, founded in 1949 as the third football club in the city of Siena, is an important sports centre for the district and the city. It promotes numerous initiatives including summer camps for children.

40 members, 120 associates, 50 children participating in summer activities.

To these realities must be added the **Associazione Diapason** which, although based in Ravacciano, has as its reference point the entire city. It was founded in 1978 in Siena with the aim of promoting cultural and artistic activities with particular attention to the diffusion and teaching of music. Over the years, the association's centre for musical training and improvement has evolved and now deals with classical and modern music in a professional manner. The number of students attending the various courses each year is over 400, with approximately 16,500 training hours per year. The Associazione Diapason also has a private nursery school, Baby Academy, with a musical focus.

Key personalities for the Ravacciano Community

A preparatory activity was carried out, which could subsequently be developed with a questionnaire or other methodologies, aimed at defining who are today the figures recognised as most exemplary in making community, in weaving relationships, as well as proposing themselves as issuers of shared values and practices. In particular, about ten Ravacciano citizens were asked to indicate who were three names that, in their opinion, play this role more than others, explaining their motivation.

As had already emerged during the research, it would seem that the leaders in this field are the representatives of the various organisations, first of all the Parish, the Ravacciano Committee and the Circolo Arci, and their closest collaborators. The most recurring name, however, is that of the president of the Circolo Arci, who, with the volunteers of the club, promotes initiatives that succeed in capturing the various sensibilities. The response of one of the interviewees was interesting,

especially in terms of motivation: he mentioned a citizen who not only promotes events, but also forges community ties by sending a thought and a recipe every day on the "Quelli di Ravacciano" WhatsApp chat.

Conclusions

Ravacciano neighbourhood, if for a long time it has been a community in the sense of *"endogroup that marks the boundaries of belonging and of the distinction between 'them' and 'us', consequently placing 'the others' outside of it"*, is today invested by changes that are intrinsic to the process of society globalisation, with a rapid reduction in cultural and social differences and identities.

Until now, Siena has been able to count on Institutions that, more than in other places, have been guarantors of the tradition's preservation and of a strong sense of belonging to the city, with the Contrade as its guardians. In addition, there is a strong secular and democratic culture that promotes civic commitment and rights. Today, social and economic changes risk quickly sweeping away a tissue of practices and relationships that have allowed citizen's wellbeing.

The experiences we find today in the Ravacciano neighbourhood bear the sign of an evolution still in progress; they probably suggest we need to pursue the same objective: feeling "part of", reinventing tools and opportunities (the neighbourhood chats are an example). Perhaps the regeneration of urban spaces can itself be a great opportunity to make community and to propose great shared challenges.

6.4.2.3. Photovoice

As mentioned in LD 1, in the southern part of the Ravacciano neighbourhood are located **three schools**: the E. Pestalozzi kindergarten (3-5 years), the Simone Martini primary school (6-10 years) and the P.A.- Mattioli secondary school (11-13 years).

Involving children in the implementation of Local Diagnostic by adapting some aspects of the methodology proposed by URBiNAT, was a priority objective of the research team. Children are indeed special protagonists, as they have an unconstrained view of reality, and an acute and intelligent awareness of their own needs and of the space in which they live. Since the researchers were prevented from entering the school because of Covid-19, the teachers played an active role in implementing the method. The first step consisted in making a small group of 4 teachers (who then involved their colleagues) aware of the objectives and methodologies in a first online meeting to plan the organisation of the work to be carried out with children and young people and with the external support of the URBiNAT team researchers. In two subsequent online meetings the work tools were refined according to the teachers' suggestions and some support materials were produced (guidelines for teachers, questionnaires for children).

The work in the classrooms was carried out in May 2021 involving **193 primary and lower secondary school children** (126+67) as well as all the children from the kindergarten. At the end of the course, the results were presented to the URBiNAT team in the presence of the councillor for School and European Projects (June 2021).

Laboratory results

1. Disegnando la città dei bambini (Drawing a city for children)

Pestalozzi's kindergarten.

Teachers reported that the 4- and 5-year-old children followed the green places they frequented on the map, observing that there are very few spaces for them in the neighbourhood.

They produced a video of them walking through some of the areas where they play and expressing their impressions. They also produced many drawings expressing their wishes for greenery and the natural environment.



Figure 67. images from the video made by the teachers of the Pestalozzi kindergarten.

Simone Martini Primary School

The workshop at the S. Martini primary school involved 105 children aged 6-10 (44 aged 6-7, 61 girls and 43 boys). Teachers worked on the vision of the children who, when asked to make a contribution to the Municipality which "needs your ideas", responded with great commitment and "seriousness", producing an abundance of graphic material prepared both individually and in groups.

It was possible to make an analysis of these drawings by classifying the different modes of the signs indicated and making some frequency distributions.

Here is a brief summary of what the drawings say about strongly felt needs.

In the children's imagination, **the school is at the centre of the drawings**, surrounded by a lot of greenery; other natural elements contribute to regenerating the space, such as **water** from a pond or a fountain, which is missing in the neighbourhood. The **presence of animals** such as birds, dogs, sheeps... the children have a holistic view of the environment, which has to accommodate different living beings. Of course, there is also **a demand for games** and, above all, **sports equipment**, among which the swimming pool (more girls) and football (more boys) stand out, as well as basketball and climbing walls... The children's eyes are attentive to urban furniture, in fact they draw some essential services for spending time together, such as a refreshment area and benches; or they indicate animals (zoo and area for dogs) or they want the typically Siena game of the "Pista dei Barberi" linked to the Palio race.



Figure 6. 68. students at work -May 2021.

Many of the indications obtained from the drawings are also expressed in the answers to the short **11-question questionnaire** that probed how the children experience the spaces in the neighbourhood and how they judge them.

Only 37 out of 126 respondents live in the neighbourhood and can walk to school, the others take the school bus or are accompanied by car. As for the streets, many note that the **pavements are ruined** (37.30%) and that **there are too many cars** (24.60%). Montagnani's garden is frequented by those who play in the green spaces of the neighbourhood, and they give it a positive opinion, much less used is the field near the school and **only 31% have been to the Green Valley**.

To the final question "*if you were mayor, what would you do to improve the green spaces*" the children expressed the following requests:

- more green areas, more trees, to create an open shelter for animals;
- more maintenance and cleaning of streets and playgrounds, more dog waste bins;

- more equipment for different games and sports, better equip the Montagnani gardens, equip a playground also for common gardens, then swimming pool, gym, park for cycling;
- more relaxation and picnic areas for meetings and refreshments (wish for an ice cream maker!)
- more cultural services (library, plant museum).

2. Progettando la città dei bambini (Designing a children's city)



Mattioli Secondary School

Teachers reported that the 4- and 5-year-old children followed the green places they frequented on the map, observing that there are very few spaces for them in the neighbourhood.

They produced a video of them walking through some of the areas where they play and express their impressions. They also produced many drawings expressing their wishes for greenery and the natural environment.

With the secondary school children, the work consisted of two stages: answering the same questionnaire as in the primary school and working with images (photos, drawings, etc.) to identify and document the problems of green areas in the neighbourhood and propose possible solutions. The questionnaire was answered by 67 students (boys and girls) from three classes, the majority of whom (86%) live in other neighbourhoods and therefore arrive at school by school bus or are accompanied by car. They, as well, notice that the streets are invaded by cars (59) and the pavements are ruined (49). Given the age of 12-13 years old, besides the Montagnani' gardens (28,36%) they mostly go to the school field (49,25%) and the Alberino football field (6%); the number of those who went to the Valley has decreased to one third.



Figure 6. 69. School children writing their proposals.
Proposals to be forwarded to the Mayor:

- increase green spaces with flowerbeds, plants and flowers, cut grass, reclaim the Valley;
- create vegetable gardens, educational farms, improve school space for outdoor lessons;
- make the streets safe by reducing the number of cars, fix the pavements, bike lanes;
- have bars and restaurants, benches to admire the view, drinking fountains;
- have more playgrounds with soft ground, and a swimming pool.

As it can be seen, the requests of the younger children and the older children are similar, both identifying the same critical points in the neighbourhood and expressing a need for a higher quality of green space and facilities for play and study and for more pleasant opportunities to meet. All these proposals are documented by a very precise and eloquent photographic survey which they worked on in groups.



● Figure 6. 70. Some critical places in Ravacciano (students' work).



Figure 6. 71(a,b). Critical points close to Mattioli school (students' work).

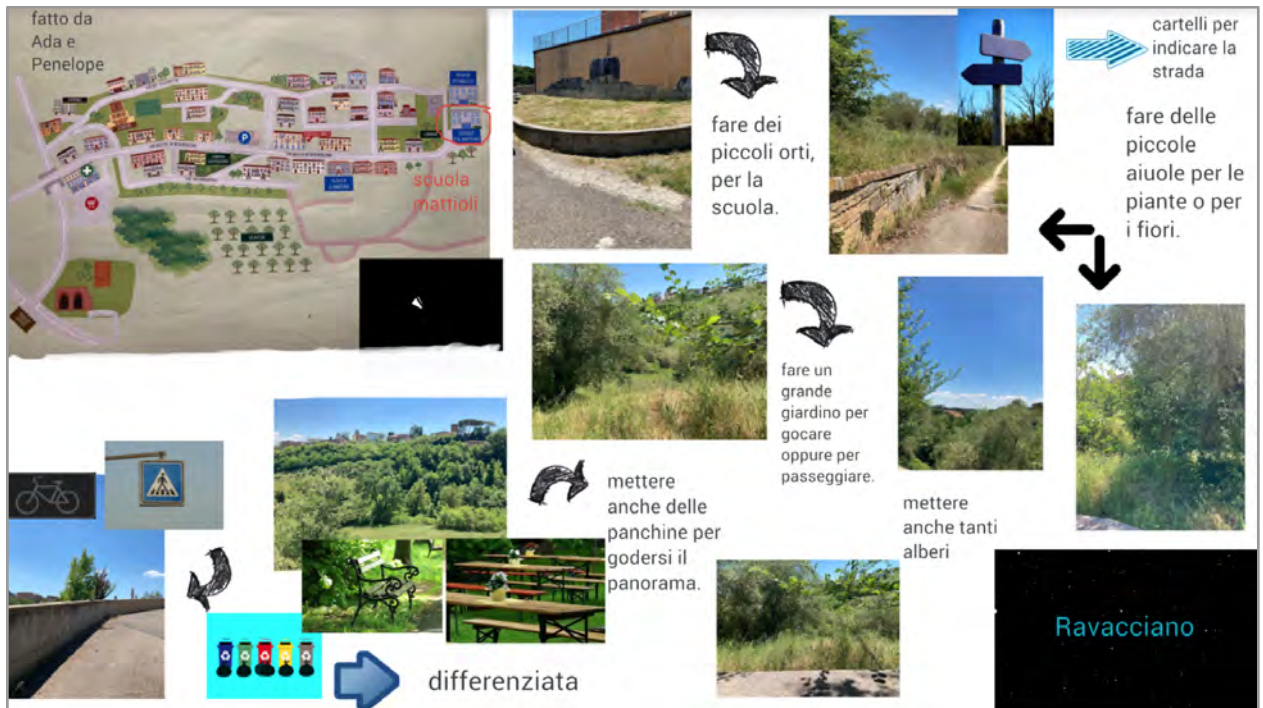


Figure 72. ideas for improving the neighbourhood.

6.4.2.4. Focus groups

As foreseen in the Research Plan, some focus groups have been organized aimed at specific targets of inhabitants and stakeholders, in order to become aware of their experiences, needs and ideas about the main issues concerning the green areas of Ravacciano in the present and for the future.

1. The first was started on February 17 2020, held at Circolo Arci.

Participants were various **stakeholders** who could provide a qualified point of view on the condition of Ravacciano neighbourhood and some located in Busseto area:

- neighbourhood citizens who play a role that offers them a particular observation point or who are interested in environmental issues (Ravacciano Committee, the district doctor, Mattioli's school, inhabitants of Busseto district, Arci circle, Alberino Sporting Group, parish priest of Alberino church);
- representatives of organisations that participate in the Rigenerar_SI Project which, since 2013, has been promoting the theme of the regeneration of green valleys in Siena.



Figure 6. 73. focus group- Ravacciano, February the 17th.

Problem areas emerged in response to specific questions:

A. Needs of the population

- promote opportunities for aggregation and socialization for the benefit of different groups of inhabitants, following the “contrada” model;
- denied accessibility of the largest green spaces, particularly the Bosco di Busseto (public property) and the Ravacciano Valley (mainly private owners);
- road insecurity: the connection with the historic centre is unsafe, sidewalks are missing or with inadequate maintenance; fast traffic in the main road;
- promote revitalization of commercial spaces: public establishments have strongly decreased, creating difficulties and negative impact, especially on the sociality of the elderly population;
- promote the implementation of Rigenerar_SI projects, in particular the experimentation of the "Human Gardens" and the involvement of the elderly, children and the disabled.

B. Weak targets and marginal situations

The parish intervenes supporting some needy families, but significant phenomena due to drugs (yes in the past), poverty and family violence are not perceived.

As for inhabitants in weak conditions, the participants indicate children, the elderly, the disabled and pedestrians, for whom the regeneration of green spaces and the creation of specific social infrastructures could bring certain advantages.

C. The environment and the Valley

The "green" resources of Siena and the Ravacciano district, including the Ravacciano Valley, are very important, but mostly inaccessible. They are *"an unexpressed potential"*. The stakeholders consider it essential to regenerate green spaces and use them for leisure, social, economic purposes. The project of the Valley outside the walls has been much debated as an opportunity to connect the quarter of Ravacciano and the Busseto area to the historic centre with sustainable mobility, on foot or by bicycle, but it was not implemented, creating resignation especially for the elderly people. The staff of the school strongly underlines the interest in didactics starting from the issue of the environment, arguing that it is paradoxical that *"there are so many green spaces and all of them are inaccessible!"*.

As noted by the observers, the participants were particularly interested and lively and strongly shared the objectives of the URBiNAT project. A meeting was then held for feedback on the progress of the project and communication tools were created to support the project such as:

- URBiNAT e-mail to facilitate relations within the coordination group:
- URBiNAT@comune.siena.it
- URBiNAT Facebook Group, dedicated to sharing updates related to the project and experiences (including external) <https://www.facebook.com/groups/URBINATSiena/>
- publication of a post on the official portal of the project www.URBINAT.eu

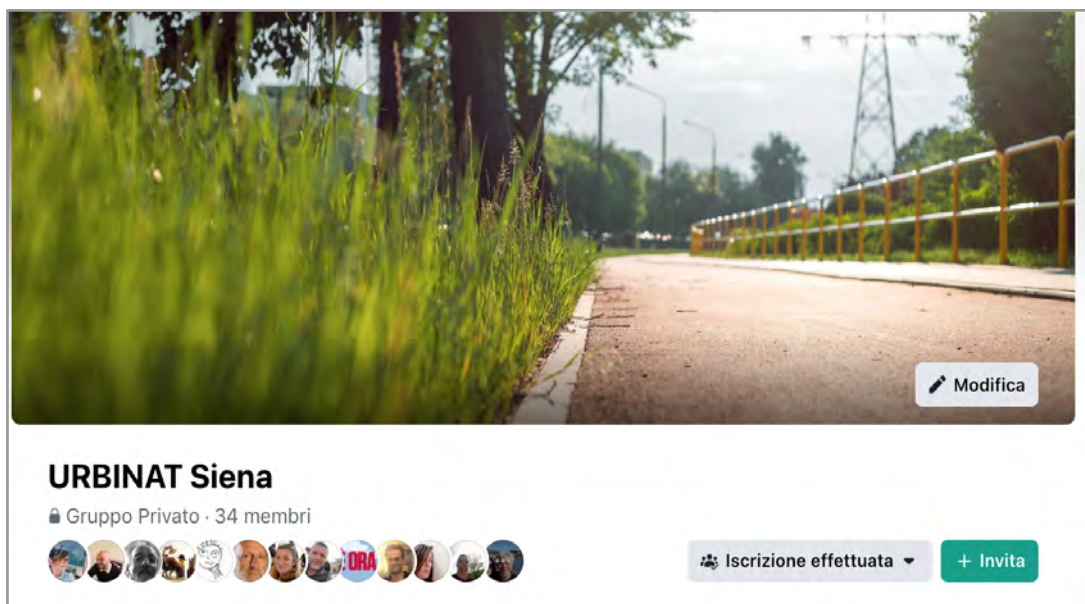


Figure 6. 74. Facebook private group.

2. The next stage of the participatory process took place in **June 2020 with** a meeting in the green area in front of the church, during which the planned activities were taken into account, the variables of the various targets and the methods for stakeholders and citizens involvement were defined.

OBJECTIVES	TARGET	SUGGESTED METHODS
Involve different targets	Elementary school children	Photovoice, questionnaire
to identify needs and	Middle school children	Photovoice, questionnaire
imagine possible solutions	18-25 youngs	Walkthrough
	Adult women with children	Focus group
	Elderly people	Focus group
	Disabled person	Interview
	Teachers	Focus group (online) Walkthrough
	Business managers	Face-to-face interviews
	Contrada Bruco and Ravacciano citizens	Walkthrough

Table 6. 27. List of methods, used according to the different targets

In order to broaden the participation to other citizens, using the method of the "relationship map", were identified people of different targets to be contacted personally: young people 18-25 years, adult women and men, elderly over 60, in total about 40 people.



Figure 6. 75 - Outdoor focus group with citizens, June 2020.

3. Focus group with adult women with children

After the long interruption due to the measures against Covid-19 pandemic, focus group' activities were held in June 2021, starting with a meeting addressed to adult women with children (on 11 June), who experience the neighbourhood from a gender perspective. There were 5 women,

graduates and employees, who reported particularly on the attendance of green spaces as mothers (children of 4,6,7, 22,15,17), highlighting the critical points and formulating micro interventions to improve them. During an animated discussion, women expressed the need to invest in enhancement of green spaces that are poorly cared for or inaccessible, since the neighbourhood in recent years has lost places and opportunities for aggregation, so young people go elsewhere. Each one identified the very few places attended with young children, suggesting how to improve them: for example, replacing gravel and benches in Montagnani gardens equipped with games, or replacing the concrete of the basketball court for young people with ecological materials, etc. At last they pointed out the completely unused and inaccessible areas such as the Valley, marking them on the map. They also proposed to:

- limit the presence of cars and improve pedestrian and cycle paths; it is emphasized the poor maintenance of the sidewalks that make it difficult for wheelchairs to pass;
- give space to other sports (not only football and basketball) and put tools to do sports (as in the Fortress);
- green the space on the roof of the covered parking (private);
- create a refreshment point and an area for events at the Fonti d'Ovile to take advantage of its potential for aggregation.

To sum up, the **key expressions** used by women were: *"do something for the neighbourhood, act concretely"*, *"develop potentiality"*, *"offer opport.*

4. Focus groups with aged people

The meeting, held on June 12, 2021, was attended by 5 people (two men and three women over 60 years old) residing in the neighbourhood for many years.

All the participants agreed in emphasizing the lack of planning and neglect regarding the green of the neighbourhood, while paths should be outlined for walking, for urban trekking of which there is a strong need. This lack makes socialization and solidarity initiatives difficult for the community, being the ARCi circle (where focus groups take place) the only place of aggregation for adults.

Alongside the need to identify passages to access the green inaccessible areas (Ravacciano Valley and Busseto Forest) as it was once, the *participants reiterate that it is necessary to enhance the present spaces that need greater care* by indicating them one by one: from the Montagnani gardens to via Valdambriano, etc. The improvements would increase the chances of walking, which they complain about as people of age.

Even this very animated meeting brings out a complex of problems, many of which have been reported by mothers, namely:

unities to young people", *"enhancement of green spaces"*.

- Pedestrian areas need to be fixed: fix uneven sidewalks, free them from parked cars that prevent strollers from passing;
- Deepen the issue of covered parking (private) whose roof could be greened;
- Arouse the collaboration of private individuals who do not mow the grass in their gardens, creating disorder and neglect;
- Reduce excessive traffic due mainly to the presence of three schools in the same area; it should be established a one-way street in the main street of the neighbourhood;
- Understand why the connection between the quarter and the Bosco di Busseto (public) is no longer as accessible as it once was.
- Enhance the panoramic via Valdambrino, which overlooks the Valley, with a pedestrian path, while currently it is cluttered with cars, garbage bins, signal poles. The possibility of connecting this road both with the northern part of the Valley (Fonte d'Ovile) and with the southern part of the quarter must be studied (a real estate registry survey on the passage rights is necessary).

This is what via Valdambrino looks like today. On the right, in the photo, the Valley with its inaccessible green!



Figure 6. 76. Via Valdambrino

5. Interview with disabled person

Integrating the focus group methodology with the face-to-face interview, we met a blind person who made himself available to tell his life in Ravacciano whose transformations he experienced over time. His analysis of the neighbourhood has been very critical, calling it "a dormitory neighbourhood", because both commercial activities (unlike in the past) and cultural, aggregative and leisure activity events are almost non-existent.

The situation has been getting worse and worse, so that young people run away, only the parish does some activity aimed at them.

The other place that brings people together with its initiatives is the Circolo di Ravacciano.

With regard to green and transit spaces, the interviewee denounces the *presence of barriers, steps, narrow and broken sidewalks or with street lamps that do not allow the passage of wheelchairs*. Other sore points are the poor maintenance of the Montagnani gardens and the fast traffic in the main street. In perspective, he sees the possibility of transforming the roof of the covered garage into green and establishing a connection with the northern area of the Valley (Fonte d'Ovile and sports field).

In conclusion, it is very significant to note that the focus groups with stakeholders, with mothers, with elderly people and with the disabled person have expressed similar analyses regarding the needs of the inhabitants of the neighbourhood and reported the condition of the green of Ravacciano. The participants also indicated which green areas should be enhanced and how to redevelop, with a strong investment aimed at the well-being of the population of all ages, better relationships in the community, livability and safety.

Briefly, the most important indications regarding the green areas common to the different targets, useful for the co-definition of NBS are:

PLACE	CURRENT STATUS	PROPOSED INTERVENTION
Montagnani Garden	poorly cared for, sad	replace gravel, improve benches and games
Via Valdambriano	encumbrance of cars, garbage bins, poles, etc.	to enhance how green pedestrian path eliminating everything that clutters
Green valley and sports field	now abandoned	regeneration field and area to make it multifunctional (sports area, relaxation, equipped for children, bar kiosk)
Via Duccio da Boninsegna	excessive and fast traffic, traffic jams	reduce traffic and create protected pedestrian and cycle path
Garage roof (private property)	uncultivated	put it green
Football field behind the church (private)	little used	increase activities for young people
Basketball "Campino"	neglected, not very clean	redevelop, replace asphalt with ecological draining material
Meeting area near "campino" basketball	poorly maintained	redevelop greenery and furniture for rest and leisure
Green of schools	lacking	planting trees and replacing gravel
Local path to Bosco of Busseto	closed, unusable	reopen and redevelop as part of a green pedestrian path to Bosco of Busseto

Table 6. 28. List of proposed interventions in different areas of the neighbourhood.

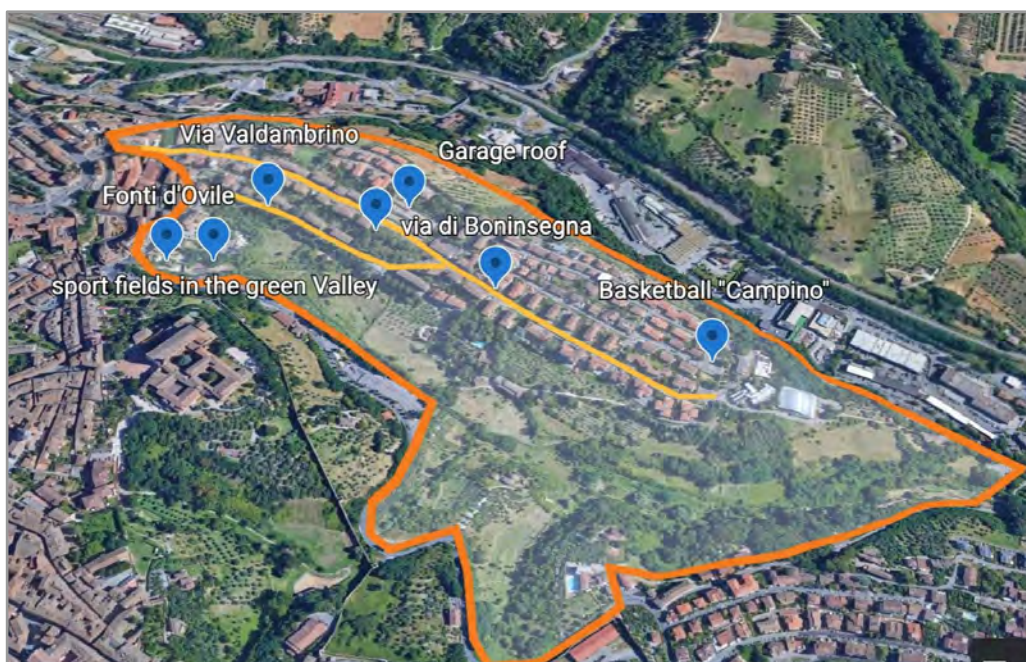


Fig. 77. Some places to be redeveloped and the green Valley in Ravacciano neighbourhood.

6.4.2.5. Face-to-face interviews

The study-area of Ravacciano, if considered from the point of view of the economic fabric, currently hosts a limited number of commercial enterprises. The reason for this is not so much the fact that the area of the district is rather limited, but rather the disappearance, over the last twenty years or so, of several shops that previously constituted a fairly well-stocked and sufficient network for the various needs of the population.

This process is mainly due, at least as far as the food sector is concerned, to the large-scale retail trade that has settled in the neighbourhood, pushing many small businesses to close. In view of this situation, the managers of **three companies** with a long presence and an interest in the life of the neighbourhood were interviewed:

- a Carrefour food distribution shop (active since 1981), which is used by all the inhabitants
- the 'Forno di Ravacciano' (www.fornoravaccianosiena.it), a bakery known for the production and distribution of various salty and sweet products also in other districts of Siena (officially active since 1963 and taken over by the current owners in 1989)
- Hotel Moderno (www.hotelmodernosiena.it) overlooking the Valley (active since 1954) which operates in the tourism sector.



Figure 78. The “forno of Ravacciano” in an old picture.

The objectives were:

- 1) to know their points of view on the neighbourhood's problems in relation to the liveability and well-being of the population;
- 2) to understand whether the revitalisation of green areas and in particular of the Valley was seen as a positive fact not only for environmental sustainability, but also to stimulate their economic activity or possibly promote others.

Several issues were highlighted by the interviewed business leaders.

Social life: Ravacciano is considered a "very cohesive neighbourhood", in which there are active relationships and solidarity actions towards elderly people and families in difficulty. There is a network of people active in relation also to the project Comunità solidali (www.lacortedeimiracoli.org/progetto-comunita-solidali), born from the collaboration of several associations including the Circolo Arci Ravacciano, the Sporting Group l'Alberino and the Comitato di Ravacciano. The project intends to activate specific practices of mutuality and collaboration among people with the aim of creating a real solidarity community.

Among the project services activated in the neighbourhood we have: **the collection of food and consumer goods** (both the bakery and Carrefour are part of it by donating foodstuffs), which are distributed to needy families also through the commitment of young people; **a form of "Social Concierge"** to give answers to the small needs of the neighbourhood community, aimed in particular at people in fragile situations (the elderly, disabled, etc.); **a small popular lunch service** that uses food close to its expiry date (mainly donated by Carrefour) to offer lunch/dinner to people in fragile situations. A small canteen that uses food close to its expiry date (mainly donated by Carrefour) to offer lunch/dinner to people in fragile situations. A WhatsApp chat of 35 people is active among the citizens as an organisational tool for solidarity activities, which has its centre in the Arci club that operates in synergy with the Alberino Church. Other solidarity actions concern school help given to children with difficulties (e.g. children of immigrants) and recreational activities (events, dinners) designed especially for the elderly population.

The bakery entrepreneur comments: "it's a community that helps each other".

Liveability. Undoubtedly, excessive traffic, especially at certain times of day, is the most serious problem. This situation is due to the presence of three schools (kindergarten, primary and secondary schools close to each other) attended by children from other neighbourhoods (only about 30% live in Ravacciano), who are brought in and taken out by car along the main road (the only access to the neighbourhood) via Duccio da Boninsegna, causing traffic jams and pollution. Moreover, there is no pedestrian path, which would be useful and safe for everyone, children, parents and teachers.

Regarding the issue of people's mobility, this would be improved if the rather steep stairs that currently connect the Carrefour and the historic centre with the rest of the neighbourhood were mechanised to make it easier to get up, especially if you have shopping bags. The situation is particularly burdensome for the elderly, even if home deliveries are made (increased in the Covid-19 period).

Green areas. There is a common opinion that they are few and not well maintained, so more maintenance is needed, especially of the Montagnani gardens, now equipped for small children, while it would be necessary to provide for the elderly with suitable benches.

The Valley, the Fonti d'Ovile area and businesses. Starting from the fact that the Valley will hardly be practicable because the private owners deny access, the interviewees hope that the final part, adjacent to the ancient "Fonti d'Ovile", will be improved, since it is the property of the Municipality of Siena. The entire area - which is dominated by one of the many magnificent medieval public fountains still in operation - should be redeveloped.

There is a call for the return to use of the now abandoned structures adjacent to the fountains: the basketball court, which has been unfit for use for ten years or so, and which 'it would make sense

to turn into a multi-purpose court', the dilapidated building of the changing rooms, and the small, completely abandoned five-a-side football pitch. The interviewees also put forward solutions for connecting this area with the neighbourhood, hoping that a project could be defined under the direction of the municipality. And, once the technical issues, including the sanitation of the "Ovile ditch" that runs through the valley, have been resolved, the benefit for the population would be great, for families, for school children, for everyone. The suggestion is also to provide for the subsequent management arrangements, to prevent the area from becoming a place of drug use as in the past. In perspective, this redevelopment would mean that many people would have to find refreshment outlets to set up in the area, with an undoubted economic advantage for the respondents' businesses as well as others. And for this reason also other enterprises (e.g. restaurants, pizzerias) could be interested in the development of the URBiNAT project.



Figure 6. 79. Fonti d'Ovile and the abandoned basketball court behind.

6.4.2.6. Territorial Mapping

Territorial mapping made it possible to represent the characteristics of the Ravacciano district from an urban planning point of view, especially as regards the green areas and the context in which they are located, and the services, which are a driving force for encouraging its development. The methodology used was mainly that of observation and the retrieval of data through SIT (Territorial Information System) and archive documents.

History of this district is relatively recent:

"The question of the rehabilitation of Salicotto gave rise to heated controversy between the renovators who wanted a total reconstruction of the district and the traditionalists who wanted a more gentle and conservative operation. Discussions went on for about a decade in search of the best solution, but unfortunately the loss of urban fabric was enormous. To solve the problem, it was necessary to wait for the appointment of the first Podestà of Siena, Fabio Bargagli Petrucci, who was appointed on 24 December 1926 and who immediately took the problem to heart and worked to resolve it [...]".

The Podestà's administration thus prepared a general plan for redevelopment that provided for the construction of council houses in the Valli and Ravacciano areas, to be allocated to the inhabitants of the neediest districts; it brought about notable improvements in hygienic conditions, so much so that

the overall mortality rate fell drastically; it committed itself to promoting art and culture. Bargagli Petrucci, the Podestà, went to Rome in person to describe the critical situation in Siena to Mussolini and to receive financial aid (7 April 1927). Five months after that conversation, in which the Duce had promised support, the Podestà went to Rome again and presented a detailed project for rehabilitation. With great speed the work began in October 1928. The hygienic situation in the Salicotto district was indeed disastrous, but the redevelopment also served to remove families opposed to the regime and the poor underclass from the city centre. At the same time as the work was being carried out, the Podestà asked and obtained, for the first time in Italy, that the two neighbourhoods of Salicotto and Oville be placed under the protection of a decree that placed them under landscape protection to prevent them from being subjected to savage demolition (special law for Siena 28 June 1928). This did not prevent the demolitions in Salicotto from wiping the slate clean and the district was rebuilt from scratch in a few years. In 1931, the construction of Valli and Ravacciano was completed, despite the fact that there were considerable problems in finding funds. (Source: Rivista intera 28-11-2006 16:47 Pagina 33 <https://www.accademiadeirozzi.it/wp-content/uploads/2014/03/numero25.pdf>)

Ravacciano is the neighbourhood that was built ex nihilo following the redevelopment of Salicotto, between the 1920s and 1930s (together with the smaller Valli); hundreds of Sienese (especially those from the Torrai area) migrated from the hovel in which they lived to houses that were always decent, often more than decent, distinguished by the late Art Nouveau style that still characterises much of the neighbourhood today. A complex urban-social experiment, but globally successful (if we think of most of the post-1945 Sienese suburbs, very successful) [...] during the regime only a first lot was built, the one along via Duccio di Boninsegna and via Valdambrino and work began in 1931, to be completed only in 1938, while the Ravacciano bridge was inaugurated in 1940. The rest of the district (Via del Vecchietta, Taddeo di Bartolo, the remaining part of Via Duccio di Boninsegna after Via Lippo Vanni etc.) was built after the war, roughly from 1946 to 1961 [...]. (source: <http://www.eticodisiena.it/2014/09/18/passeggiate-senesi-iii-ravacciano/>)

The traces of this history are still very evident, especially in the buildings in via Boninsegna and in via Valdambrino.

Green Areas

The Ravacciano district is like a small peninsula connected to the city by a bridge. As can be noticed from the photo below, the Ravacciano Valley - a projection outside the walls of the Follonica Valley - is the largest green area facing the neighbourhood. In the idea of regenerating first of all the green areas of public property, finding their connection within a healthy corridor, it was important to carry out a reconnaissance of the spaces of both the neighbourhood and the valley.



Figure 6. 80. Ravacciano neighbourhood.

The municipal green areas present in the urban perimeter of the district are few and almost all in need of redevelopment. Through SIT and observation, using a classification proposed by Ispra¹⁴, a survey was carried out:

- row of trees in via Valdambrino
- row of trees in via A. Lorenzetti
- dogs area
- Montagnani Garden
- flowerbed in front of Alberino's Church
- green area of S.Martini Elementary School
- the field in front of Mattioli School
- flowerbed in front of and behind Mattioli School
- Green area of Mattioli School

The above-mentioned valley, which is the subject of the URBiNAT project, is almost exclusively private and inaccessible. The communal areas shown in the plot image are not all green areas; some was turned into car parks. The municipal green areas in the Ravacciano Valley are essentially:

- to the north, in the stretch where the Fonti d'Ovile are located, in contiguity with a basketball court and a football pitch, which are also municipal;
- to the south, where the Busseto Grove is located, which is inaccessible from the Ravacciano neighbourhood.

The social housing

In Ravacciano there are two single plots under the P.E.E.P. Piano edilizia economica popolare (Social housing plan), an urban planning instrument, which was introduced in Italy by Law n°. 167

¹⁴ The Istituto Superiore per la Protezione e la Ricerca Ambientale - Italian public research institute, supervised by the Ministry of Ecological Transition.

of 18th April 1962. Both were assigned after 1992 in right of ownership: one is located in Via Duccio da Buoninsegna, near the Mattioli school and one at the end of Via A. Federighi.



Figure 81. P.E.E.P. 1992.

Urban voids

In the exploration of urban voids (areas that have become obsolete over the years, i.e. abandoned or transformed according to their intended use), have been identified some public spaces in the Ravacciano neighbourhood and valley. These spaces are to be included in the healthy corridor that will be co-designed with the citizens. This examination shows that the only urban void in the study area is the one near the Fonte d'Ovile: an area abandoned for more than ten years, in which there are two playing fields, one for basketball and one for five-a-side football, with a building once used as a locker room. The opportunities for regenerating this area, in which the citizens involved in this phase have shown great interest, will be explored during the next steps of the project.



Figure 6. 82. Abandoned sports field near the Fonti d'Ovile.

Facilities

Commercial services in the neighbourhood have been reduced to a minimum. The list is short:

- Ravacciano Bakery
- Pharmacy of Ravacciano
- Carrefour supermarket
- Tobacconist/Stationery shop
- Newsstand by Minucci Simone
- Mancini Electricity
- Tobacco vending machine
- Solidarity purchasing group

Services in the craft sector

- Lia Beauty Centre
- Hairdresser Meucci Claudia
- Self Service Laundry - Kristal Wash

Tourist services for accommodation

- Moderno Hotel, Viale Peruzzi
- Attico S. Francesco b&b, Via Valdambrino
- Affaccio su Siena b&b, Via del Vecchietta

Public activities

The Circolo Arci, which besides carrying out numerous recreational and social solidarity activities, is the only neighbourhood bar. It's open by volunteers at certain times of the day. In the neighbourhood there are no restaurants.

Cultural and recreational services

- Musical and Cultural Association Diapason-Armonia
- Club Arci Ravacciano
- The Parish
- Alberino Sports Group
- Ravacciano Committee

School services

- Simone Martini, State Primary School
- Mattioli Secondary School
- E. Pestalozzi" State Infancy School
- Diapason Baby Academy (private)

Sports facilities

- **Alberino parish sports ground** where there is a football pitch managed by the Gruppo Sportivo Alberino, which includes two changing rooms, a small stand for spectators and the "Barrino dell'Alberino" (association bar) for athletes and spectators during games.

- **Ravacciano's gymnasium**, owned by the municipality and managed by UISP Siena. It includes other sports associations such as 'Chiodofisso' (climbing courses) and other informal sports groups.
- Outdoor basketball court near Mattioli School.

Health services

- GP surgeries - Via L. Memmi

Banking Services

- Monte dei Paschi di Siena Bank - ATM machine

Mobility

Ravacciano is not considered a particularly problematic area in the municipal mobility plans (PUMS). Given its proximity to the centre, it risked being considered a car park for those who wanted to reach the streets of the historic centre. With the establishment of the ARU (Area of Urban Relevance), which provides most of the parking for residents, this problem seems to have been solved. Moreover, since there is no reason to cross this district to reach other destinations and since there are no commercial activities in this area, traffic in Ravacciano is mainly determined by residents and schools at entry and exit times.

Public transport

The neighbourhood is served by the Tiemme bus no. S19 and by a bike sharing service called *Sipedala*, managed through the Public limited company of Siena Municipality called *Siena Parcheggi*. *Sipedala project* was initiated by the municipal administration to reduce the concentration of pollutants in the air and aims to integrate the public transport network with the pedal-powered network consisting of 18 stations, one of which is located in the Ravacciano district. Near the neighbourhood there are the buses S8, S34, S38 and 102 (with stops in Via Simone Martini). The bus stops of public transport services and of the bike sharing are located close to the points that could constitute the healthy corridor of our study area. No negative elements on public transport were found during the research.

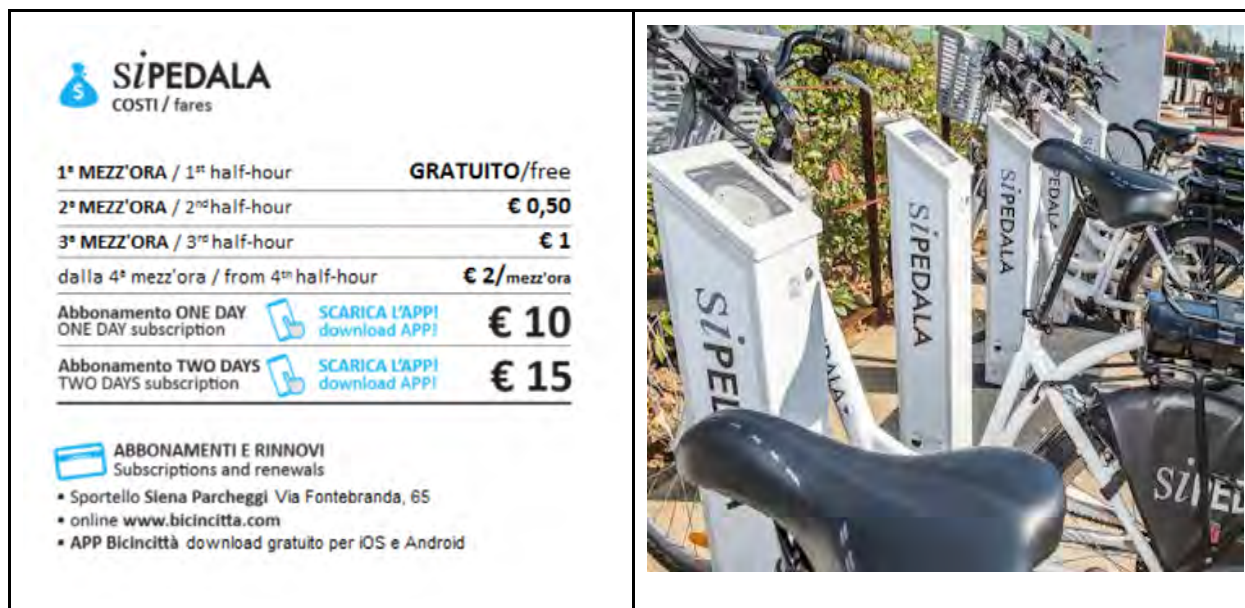


Figure 6. 83. Sipedala bikesharing

Formal and informal pedestrian routes

The pedestrian routes in the district are essentially those on pavements, present only on Via Buoninsegna and Via Lippo Vanni, Via A. Lorenzetti. There are no pavements on Via Del Vecchietta, apart from a very small section for cars. The observation highlighted how the pavements are often narrow and basically not intended for pedestrians, considering the parking space is marked on the pavement. In addition, it should be noted that this condition diminishes walking mobility and make it dangerous.

The greatest volume of traffic, including pedestrian traffic, is on Via Boninsegna, especially at school entrance and exit times. The shady pedestrian paths are Via Lorenzetti, Via Valdambriano and Via Federighi. Elderly people are often seen walking in Via Valdambriano, but there are few benches and they are not always in good condition. From Via Valdambriano there is a staircase leading down to the Carrefour market in Largo Sassetta, from which it is possible to go back up to the road (SR2) leading to Porta Ovile. It must be said that the staircase, although a means of connection to the centre, is rather long and sloping, unsuitable for the elderly and unsuitable for physically disabled and visually impaired people and parents with pushchairs.

The area from the staircase to the Fonti d'Ovile and the abandoned playgrounds, owned by the municipality, has been identified as one of the pieces of the Healthy Corridor to be regenerated by providing adequate pedestrian paths. Finally, during the territorial analysis, an issue emerged that will be explored in more detail later, and which concerns the pedestrian connection between the Ravacciano neighbourhood, where the Mattioli School is today, and the Bosco di Busseto. During the research, stories emerged about a nearby road used in the past to get to the Bosco di Busseto, which is now barely visible and whose reactivation would require an agreement with the owners who own most of the valley, often uncultivated and in a state of abandonment. This would add

another piece to the healthy corridor in the southernmost area.



Figure 6. 84. Via Valdambro with parking space is marked on the pavement.

6.5. Nature based solutions

6.5.1. NBS policy in Siena

The Municipality of Siena, considering the increasing need to promote solutions that respect and implement the natural resources of the environment, has promoted several NBS development projects. It is a strategy that is first and foremost a challenge to the change of cultural models that until now have governed both the choices of the public administration and the lives of citizens. It is necessary to implement actions responding to a medium- and long-term sustainability strategy, in order to make the city even more welcoming and healthy for the inhabitants and tourists.

Within the projects on which the Municipality's policy is based to implement the NBS, the more relevant concern:

The challenge for carbon neutrality and sustainability of cities

In December 2019, the Commission unveiled the European Green deal, the plan to make Europe climate neutral by 2050. Zero emissions (or carbon neutrality) are about achieving a balance between emissions and carbon uptake. To achieve this goal, the emission of greenhouse gases will have to be counterbalanced by the absorption of carbon emissions. The municipality of Siena is part of the Alliance for Carbon neutrality with the Province of Siena, the MPS Foundation, the Tuscany Region and other supporters.

100 thousand vegetable gardens in Tuscany

The city of Siena takes part in the project “100 thousand vegetable gardens in Tuscany”. It was one of the first cities to join the regional Urban Gardens project. An intervention to revive and recover uncultivated, marginal or abandoned land.

Administration of common goods

Siena was the second municipality in Italy to approve the Regulation for the Shared Administration of Common Goods in May 2014, thus formalising the redevelopment and care of the city's territory by citizens. The city boasts a very strong civic tradition in which individual or associated citizens (associations, neighbourhood groups, Contrade...) have been active in the care of tangible and intangible common goods. Actually, 10 Collaboration Pacts are active in Siena (including one with the Ravacciano Committee), and there are also other differently formalised forms of agreement, with the Contrade and for the care of olive trees.

The NBSs listed here are referred mostly to the territorial and social, some of which are not totally built.

6.5.2. Territorial Nature Based Solutions

Name and Type of the NBS RIGENERAR_SI

Location Siena, Ravacciano's Valley

The NBS Legambiente Siena APS is the leader of a network of associations that are part of a partnership agreement with the Municipality of Siena starting from April 2016 for the redevelopment for agricultural, educational and therapeutic use of the area not affected by urban development constituted by the confluence between the valleys of "Follonica" and "Ravacciano". The area looks like a real "laboratory" where you can experiment with regenerative practices both at an environmental and social level in the open air, also and even more so as a response to the COVID emergency.

In the southern part of the valley, areas have been created for **social gardens**, gardens for the use of disability' associations for the disability and schools, an **apitherapy** area, relaxation areas and an area for pet therapy activities. There is an apiary on site for an **urban beekeeping project**.

<https://www.rigenerarsi.eu/wp/zona-pilota/>



Figure 6. 85. Urban beekeeping project and social gardens.

Evaluation. The success of these pilot projects could lead to similar experiences in other green areas of the city.

6.5.3. Participatory NBS

Name and Type of the NBS Social Chat on WhatsApp

Location of the workshop Ravacciano, Siena

The NBS In Ravacciano neighbourhood there is a WhatsApp' chat that involves 114 citizens, used to communicate information on the activities, events and neighborhood's problems. The chat is also a tool that makes citizens feel like they belong to a community which takes care of your life, even giving the good morning and good night.



Figure 6. 86. WhatsApp neighbourhood chat.

Name and Type of the NBS: Citizens' management of the commons (Ravacciano Committee)

Location: Ravacciano, Siena

The NBS: Ravacciano Committee, thanks to the cooperation agreement signed with the Municipality of Siena, has adopted public spaces that were practically abandoned, in order to take care of them and make them suitable for the organisation of activities for the inhabitants of Ravacciano. The association also promotes socio-recreational activities, citizen's participation to initiatives to maintain and improve urban decorum and awareness campaigns aimed at improving the relationship between citizens and public administration.



Figure 6. 87. Public spaces adopted by citizens.

Name and Type of the NBS: Pedibus - progetto Mosaico

Location: Ravacciano, Siena

The NBS: Mosaico project involves seven municipalities in the Siena area. In Siena, the project has focused on the pedibus, which will be tested in the Ravacciano district. In addition, a car-pooling platform will be created for the employees of local companies, universities and schools. A mobile application will support users in coordinating timetables and routes and will provide reassurance in case of mistrust of strangers and guarantee independence in case of unforeseen events.

A key figure of the service management is mobility manager (MM), who provides coordination functions between municipalities, companies and schools in the area.

A pilot route will start in October 2021 and will depart from Viale Mazzini and arrive at the S. Martini primary school in Via Duccio di Boninsegna, passing through the Ravacciano district.



Figure 88. Project MOSAICO logo.

6.5.4. Social and Solidarity economy

Name and Type of the NBS Supportive Communities- Social Concierge

Location Ravacciano, Siena

The NBS. The social concierge will directly involve the citizens of the neighbourhood in social initiatives in favour of people in difficulty, such as the delivery of groceries at home, the sale of books and used educational material, support to families through services that facilitate the relationship with public offices and other socio-cultural activities. The service is active at the Circolo Arci.



Figure 6. 89. COMUNITÀ SOLIDALI graphic identity.

Name and Type of the NBS Supportive Communities - Food sharing

Location Ravacciano, Siena

The NBS. The collection of food and consumer goods has two objectives: to reduce food waste and to collect basic necessities and foodstuffs for people living in conditions of economic hardship. The food collection is open every day at the Circolo Arci and involves the inhabitants of the district, the Ravacciano Committee and economic activities (Ravacciano Bakery, Carrefour, etc.).



Figure 6. 90 (a, b). Volunteers of Circolo ARCI.

Name and Type of the NBS Supportive Communities – Popular canteen

Location Ravacciano, Siena

The NBS. Periodically a lunch or dinner is offered to those who live in a situation of discomfort and wish to have a meal in company; particular attention is paid to older people living alone. This activity is organized at the Circolo Arci “Cultura e sport” and also involves the inhabitants of the district, the Ravacciano Committee and economic activities (Ravacciano Bakery, Carrefour, etc.).



Figure 6. 90 (c, d). Volunteers of Circolo ARCI.

6.6. Baseline for the development of the healthy corridor

In this section we take up some **key themes** that appear relevant in order to identify the development of the Healthy Corridor in the Ravacciano study area.

This co-design finds first of all its cultural base of reference in the "green" environmental sustainability policy that the municipal administration of Siena has been conducting for some time. The main pillar is the set of actions that have led the city (and the surrounding country) to the achievement of “**carbon neutrality**” in recent years, a condition in which "greenhouse gas emissions are completely offset by the ability of local ecosystems to absorb CO₂" (see stage 1, 3.1). Forests and green areas have great absorption capacity and are the main protagonists of these policies that must deeply involve the population to be effective. In this context, the Green Valley of Ravacciano, to be preserved and made accessible to citizens, plays a primary role, aligning itself

with the general objectives of the Municipality in terms of sustainability and promotion of healthy life.

Another asset of the city that is in tune with the participatory method and the objectives of URBiNAT, concerns the policy of the Municipality to encourage dialogue with citizens on the strategic choices of the city. Since 2008 the **"House of the City"** was established to provide everyone with the opportunity to be informed in advance about the proposals drawn up by the municipal administration on the future of the city and its territory, to know the motivations and to participate in the decision making on the tools of management of the territories (Structural Plan and Urban Planning Regulations).

If the previous policies constitute a cultural basis for the co-design of the Healthy Corridor at the urban scale, considering now the Ravacciano area, from the qualitative study for the Local Diagnostic some critical and problematic factors have emerged and others positive in the life of the neighbourhood concerning citizens and stakeholders.

The key resources to count on for the development of URBiNAT's objectives appeal to the **"civic responsibility"** present at least in a part of the inhabitants: a disposition to solidarity, to take care of needy people that has been organized in a stable way, centred particularly on food collection and distribution, *"a cohesive neighbourhood that does a lot"*.

At the same time, the tendency to collaborate and take care of places is shown at the institutional level in the **"Pacts of Collaboration"** and in other agreements between the Municipality and various sports and social promotion associations, where a significant number of volunteers are involved, namely:

- with the Ravacciano Committee a Collaboration Pact is active (renewed in 2019) for the management and maintenance of the Basketball Court and the next gardens (near the Mattioli School);
- with the Legambiente Association, leader of the group of organizations that refer to the Rigerar-SI project, for the care and management of some green areas in the Ravacciano Valley (Urban Vegetable Gardens);
- with the "Contrada del Bruco", which in the past had managed the Fonti d'Ovile area and, in particular, the basketball court behind the Fonti, interested in the redevelopment of this place;
- with the "Chiodofisso" Association for the expansion of the climbing structure in the gymnasium of Mattioli's school.

They are human and community resources to be involved, having at heart the development and well-being of the neighbourhood which, on the other hand, suffers from a certain fragmentation and division between the generations, who do not find common places and activities of exchange and relationship. So much so that adults and the elderly complain that "young people are leaving", while young people denounce that they do not have attractive recreational and sports places to meet. Even the commercial fabric has become poor and reduced to a minimum, with consequent discomfort especially of the elderly population numerous in the neighbourhood (demographic characterization), although there is a delivery service for them by the Carrefour store (solidarity element).

In fact, a contrasting image of the neighbourhood has been outlined in many ways: a narrative of

adults and the elderly that aims at a redevelopment of places and activities through the URBiNAT project in order to make the neighbourhood more liveable also in memory of the "village community" and a community lifestyle that was once Ravacciano. The younger generations, on the contrary, nourish a rather negative image of their neighbourhood that they do not appreciate, as it lacks attractions to attend in the free time after study or work, but to sleep.

In this sense, the development of the Healthy Corridor through the co-decision and co-design of different redevelopment actions, can be a tool to mend this generational distance, recovering the use of green areas and sports equipment currently abandoned, which can become a source of attraction and "belonging" to the quarter.

Local needs and expectation of inhabitants and stakeholders

Stakeholders and citizens who have expressed their point of view in the various qualitative methodologies, have drawn a sufficiently articulated and exhaustive picture regarding the perceptions, needs and expectations of the various types of inhabitants of the Ravacciano study area concerning both the social fabric marked by the subjective behaviours of community participation, and the conditions of the green areas of the territory.

On the social level, it is widespread expectation that the process of creation and implementation of NBS is a factor for the revitalization of the life of the neighbourhood, promoting new models of health caring life in the inhabitants and together new forms of aggregation in public spaces. Also overcoming a certain disillusion especially of the elderly, who attribute a small inertia to the Municipality regarding the projects of arrangement of the Valleys surrounding Siena.

In a territorial perspective, the different green areas were analysed, few in number and at the moment with little maintenance if not unusable for several years together with the sports equipment. Therefore, the expectations of the inhabitants are pressing towards redeveloping interventions of those public areas with punctual suggestions, even small ones, but decisive for renewing their use in a perspective of safety and sustainability of the environment. Above all, the request to use at least part of the large Green Valley that separates the district from the historic centre within the walls stands out, at the moment inaccessible due to the opposition of the private owners of many plots of land, leveraging on publicly owned land.

At this stage it is not possible to speak of definitive choices, but the entire work of Local Diagnostic, both in terms of data and discussion with citizens, has made it possible to identify the next steps to be taken.

Therefore, **next steps for the realization of the Healthy Corridor** should concern the following NBS projects:

- **redevelopment of the Fonti d'Ovile area** which, in addition to the historical source, sees the presence of sports facilities unusable for some time, a basketball court, a soccer field and changing rooms; and creation of a meeting area for families (northern area of the Ravacciano Valley);
- identification and construction of **a connection in the green area between the Fonti d'Ovile and the quarter** (via Valdambriano) that can also be used by the elderly and wheelchairs;
- **arrangement of via Valdambriano** to create a pedestrian path for urban walks on the side overlooking the Valley;

- identification of a **path of local passage to connect the school area with the forest of Busseto** in the southern part of the Valley. More elderly witnesses recall the existence of this passage located among private properties no longer cultivated, now visible only at times, but lost. This passage would be very useful not only as a crossing of the Valley by everyone, but in particular it would allow the children of the Busseto district to reach the school on foot without making the long journey by car as it now happens (cause of pollution and excessive traffic in Ravacciano). In addition, this would allow to connect: 1) with the regeneration project of the Bosco di Busseto for public use recently completed, 2) with the access to the vegetable gardens recently inaugurated in the Valley that should be attended by school children (project Rigenerar_SI), who otherwise have to make a wide tour, passing through Viale Peruzzi;
- **redevelopment with eco-friendly materials of the basketball court** near the schools and the meeting area below;
- **easing of traffic with a safe and secure pedestrian path** to be created in the main street Duccio di Boninsegna to allow children to go to school on foot;
- recall the **project of the terraced roof of the covered multi-storey garage** (private property) so that it becomes greened and accessible to the public, being carried out the obligations signed by the construction company and never realized.

6.7. Conclusion

The collection of the dataset that gave life to LD2, took place in a process where the participation of different local actors mobilized the necessary synergies to allow co-selection and co-decision of the NBS. No doubt, this is a great **challenge** that must be pursued with the support of all the entities acting in the field, guided by key words such as **green regeneration, care of the environment, sociability, and well-being**. In fact, It has been acquired the firm belief that the development of green areas and the development of sociality in regenerated public spaces are closely connected, arising a virtuous circle that feeds self development and well-being of everybody.

In addition, the very identity of the Ravacciano district can be enlivened and strengthened, if needs and expectations of NBS, today entrusted to the trust created with URBINAT activity, find the way to be realized.

Finally, two **basic conditions guarantee this challenge to move forward**.

The results of the Local Diagnostic must be returned to the inhabitants to develop further participation and support to carry on the project and achieve the goals. At the same time, **a close collaboration with the urban planning offices of the Municipality is essential**, having them in charge the NBS to be carried out.

7. Khorramabad

7.1. Introduction

The project partner in Iran is the Iran Chamber of Commerce, Industries, Mines and Agriculture (ICCIMA), which spans all industrial activity in the country including manufacturing, services, mines and agriculture. It is a non-profit institution devised for bottom-up engagement. All Iran's 31 provinces are represented in ICCIMA as the national body, each having its own local chamber with broad local stakeholder representation. It promotes collaboration to spur competence development and build more attractive and successful conditions for economic and social progress on the ground. More inspiring, amenable, and bonding conditions are seen as key to innovation and value-generation.

Having established an internal commission for "Water, Environment and Green Economy" in 2015, ICCIMA aims to promote usage of NBS as a means to increase quality of life as well as promoting innovation and commercialisation. Through URBiNAT, ICCIMA plans to gain new experience of how to address specific local needs and opportunities, for the purpose of achieving greater liveability, higher productivity, and social cohesion.

In order to support the diffusion of results, ICCIMA has invited the Department of Urban Planning and Architecture at the Ministry of Roads and Urban Development (MRUD), as a coordinating national institutional partner. MRUD is the policy-making authority responsible for housing and urban planning/development, as well as the overall transport sector of Iran. MRUD is the main policy-making body within urban planning and management of urban space and is responsible for administrative plans in land, housing, urban planning, government buildings and urban development. It supervises the provision of Master and Detailed Plans for cities across the country, in which it collaborates closely with city councils and municipalities.

In recent years, MRUD has started to pay close attention to cultural and social conditions. Its services now include active promotion of Iranian, traditional, and national architecture.

The Chamber, in consultation with MRUD, selected Khorramabad to be at the forefront of information exchange and pioneering new solutions introduced through URBiNAT. Its physical structure is strongly influenced by the natural elements including mountains and rivers. The tall citadel Falak-ol-Aflak (*The Heaven of Heavens*) forms the historical core. The administrative-commercial centres are located in the northern part and residential districts formed along the Khorram and Kargan Rivers (with more than 100 historical bridges). Kiu Lake is situated in Kiu Park and green areas surround this recreational district. Uncontrolled urbanisation has led to severe problems, however, with deprived and undeveloped areas stretching from the centre to the south of the city. Lack of accessibility, mobility (traffic nodes), and concentration of resources to the northern part has led to friction and lack of trust among citizens in the south, where many residents suffer from a sense of discrimination. As a result, the structure of the city as it stands is inherently polarized. These difficulties have contributed to worsening an already bad economic situation,

which has brought deep poverty for the population, coupled with a sense of despair and helplessness.

At the core of the project stands the old neighbourhood, a kind of historical centre that is currently dormant, but with the potential to be revitalized, leverage self-confidence and create a source of innovation and development, drawing on the historical core. With the help of NBS, the plan is to create a new mechanism for bringing citizens together around this agenda. Part of it is to create a functioning inner circle where people can move around by foot, while leading the traffic around this historical core.

In order to achieve collaborations and promote participatory process inside Khorramabad, there are several means of solutions. For selecting the best means first, it is essential to determine all of the target groups that are needed to collaborate with during the project. Here are some of the means that are used for specific target groups:

1. Urban facilitating offices or centres
2. Local NGOs which are active in different fields like supporting addicted people, children, women, protecting the environment, etc.

Actually, NGOs play a significant role in enhancing participation in the neighbourhood.

3. Schools and kindergartens
4. Well-known local individuals and influencers such as athletes, actors, and religious leaders
5. Holding some participatory events in the neighbourhood



Figure 7.1: Plan for restructured car traffic around the centre of Khorramabad, coupled with established pathways within the historical core



Figure 7.2: Plan for revitalization through interconnected city centres

Above Figures were the initial plan for the URBiNAT project before starting the project. First one illustrates an important element of the plan that is under development, namely, to pave the way for a proper route for leading car traffic outside the city centre, while at the same time turn the latter into an area reserved for walkways and an effective public space within, and surrounded by, the historical core. Eventually, the plan is to form an interlinked circle of new attractive ‘development centres’ which are capable of connecting with all main neighbourhoods. Illustrated in the second figure, these centres are set to engage in a process that entails genuinely experimental activities for the purpose of stimulating citizen engagement and co-creation. These are to be accompanied by systematic evaluation and observation of what works under varying circumstances, based on observations within Khorramabad itself as well as comparisons with lessons drawn from other activities introduced within the wider network of URBiNAT partners. In this, part of the objective is to restore trust between people and city officials, especially in deprived areas.

Why the city is a follower runner

Khorramabad is officially the observer city member of the project, but due to firm engagement of Khorramabad in the project with implementation of all steps of local diagnostic stage as well as other member cities, it has been agreed between project members to consider Khorramabad outputs like a follower city, in order to have the chance of comparing a non-European city results to the European cities.

Considering the potential of Khorramabad, it can be believed that the deprived neighbourhood goes to the development stages by doing some motivational activities. Demand training for

participants can also increase the social potential that will be accessible through workshops and so on.

Improving the quality of life, creating the conditions for improving the creativity of residents in creating local jobs, empowering women, and moving towards a neighbourhood friendly to children, the elderly, the disabled and women, are among the things that the URBiNAT project in Iran intends to achieve.

Map of the study area in relation with the city

At the time of the 2016 census, its population was 373,416 persons. Khorramabad is situated on the Zagros Mountains. Khorramabad Airport is 3 km south of the city proper. Khorramabad is the largest Luri-speaking city in Iran and the world.

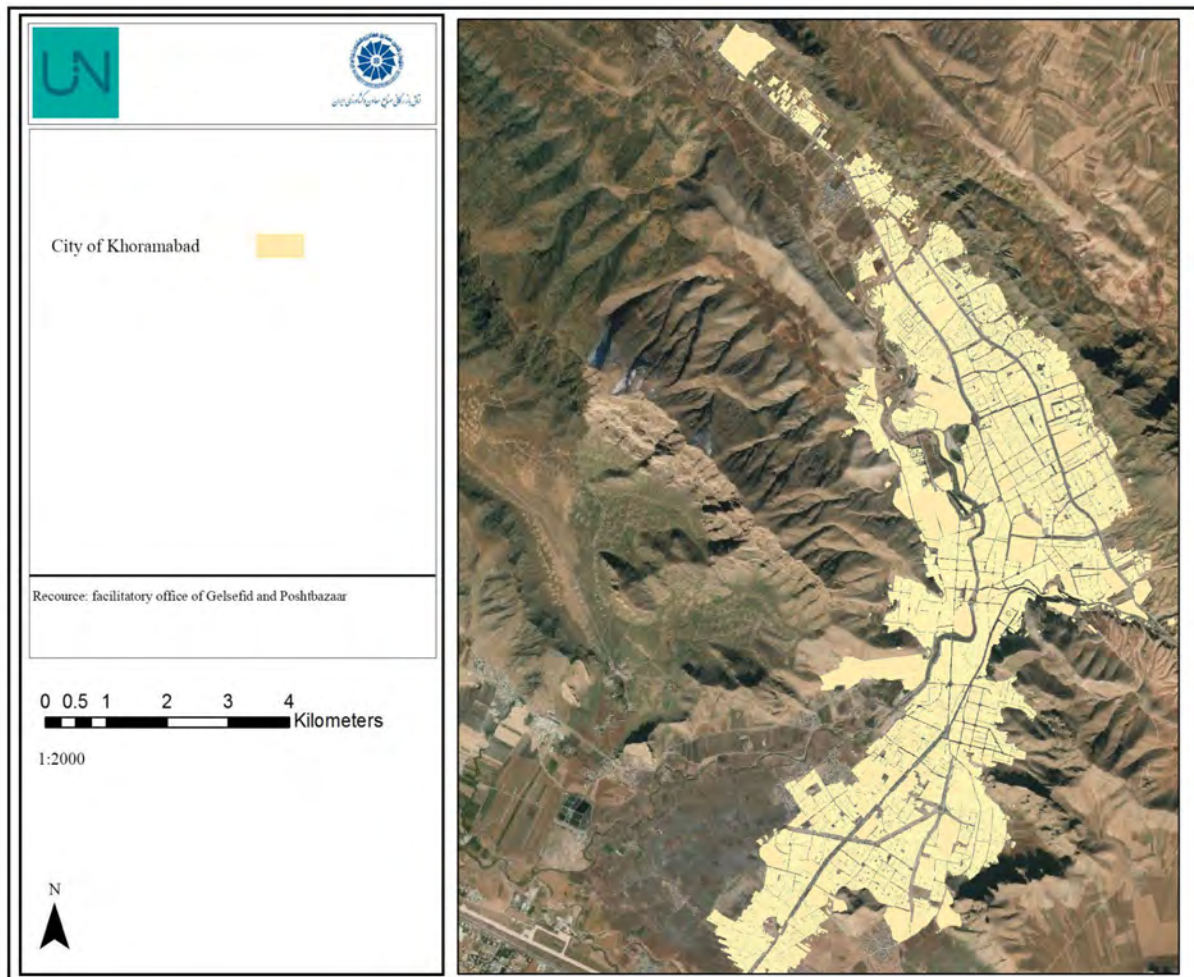


Figure 7.3: City of Khorramabad

Reasons for the selection of the study area

Deprivation and having development potentials was the reason for selecting old neighbourhoods (Pasangar, Darb Zayn Ibn Ali, Darb Baba Taher, Posht Bazar, Bajgiran, Hakim and Golsfid) as the study area.

Why it is considered a deprived area (neglected or abandoned)

Due to the low level of services, poor quality of buildings, low per capita area required local uses, poverty of residents and lack of sense of demand among residents and the desire to improve living conditions, have been identified as deprived neighbourhoods.



Figure 7.4: View of one alley in Gelsefid neighbourhood



Figure 7.5: View of Baba Taher

7.2. The city

The city of Khorramabad, the capital of Lorestan province, is located in southwestern Iran. It is located in the middle of the Zagros Mountain, in the historic valleys of the same name, where. From ancient times to the present, this city has been named Khaidalu, Simash, Simashki, Shapurkhast, Sapurkhast, Khorramabad Fili, Kilid Khuzestan and Khorramabad (Afshar Sistani, 1999, 278). Khorramabad is one of the first settlements of the Iranian people (Ghasemi, 1378, 1). The existence of a large number of historical monuments related to the pre- and post-Islamic period in the city and its historical context is another characteristic of this city. The roughness of this area is due to the folding of marine sediments of the second geological period (Mirzapour et al., 2014).



Figure 7.6: Part of the city of Khorramabad and the surrounding roughness (Mirzapour)

Location in the country

With a glorious history and several thousand-year civilizations, Lorestan, the land of elevated people of the Kasy tribe, is the one that dominated the inter river for about 6 centuries and established the industry and knowledge of making bronze and tools, raising horses, cultivating edible seeds etc. After the entrance of Aryan people to this territory, it was known as the main path, and it developed some great cities like Simash Khaydalo and Madacto itself. Now Lorestan, with centralization of Khorramabad, has a key role in the political, economic, and social situation in Iran. The population of Lorestan is about 1760649 people (2016) 49.3% female and 50.7% Male. The city of Khorramabad, the capital of Lorestan province, is located in southwestern Iran.



Figure 7.7: Location of Lorestan province

Brief history description

The word Khorramabad is composed of two parts (Khorram) meaning happy, smiling and (Abad) meaning affluent (Afshar Sistani, 1378: 654). The first origin of the city of Khorramabad should be considered as Khaid Aloo, which is mentioned in Assyrian writings and has been one of the important cities of Ilam. Many European historians have identified Khaid Aloo with Khorramabad (Ghasemi, 1375: 136).

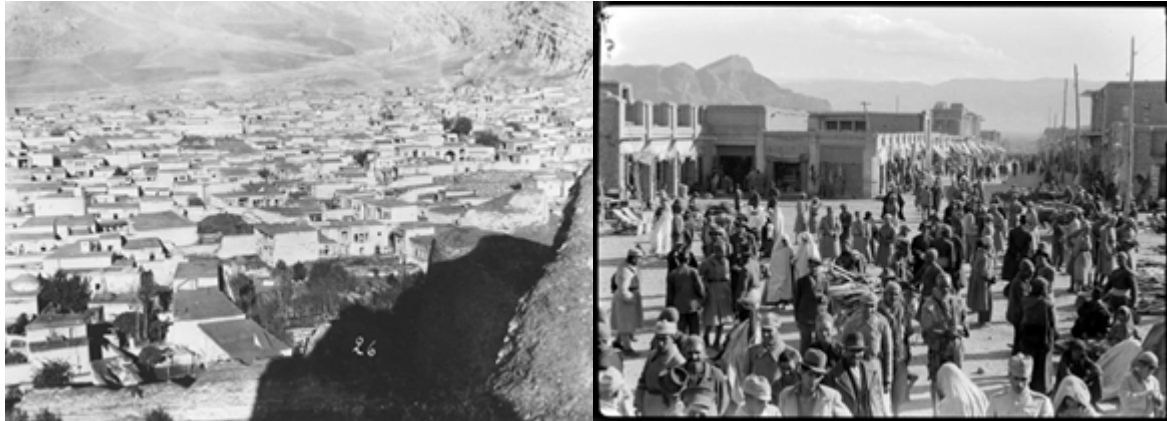


Figure 7.8: Old neighbourhood of Khorramabad (Qajar era) Figure 7.9: Old neighbourhood of Gap Square

In general, the history of Khorramabad indicates many changes that can be analysed as follows:

- o Khorramabad is now built on the ruins of the Sassanid city of Shapur Khast, so that works such as the Falak-ol-Aflak castle, Shapuri bridge and a stone whirlpool from the Sassanid era still remain in this city.
- o This city started to develop in the late seventh century AH after the destruction of Shapur Khasta, and perhaps the people left Shapur Khasta due to the location of the city and the existence of fresh and refreshing springs and came to the present place and built the city.
- o The first nucleus of the city of Khorramabad in this period (508 AH) was formed in the west of the river and in the western margin of Falak-ol-Aflak castle. In the year (788 AH) during the invasion of Timur, ShapurKhast was completely destroyed and abandoned, and the city of Khorramabad was in the west and consisted of two neighbourhoods, Posht Bazaar and Darb Dalakan.
- o The most prosperity of Khorramabad city during the Islamic era was during the Safavid and Atabakan eras.

The primary core of Khorramabad is one of the most important parts of the study area in Iran's URBiNAT project.

At the end of the 7th century AH, the new Khorramabad was formed near the old city of Shapurkhast. The Darbdalakan neighbourhood was formed from the small square.

- **The first stage of development**

In the first phase of the development of Khorramabad, two neighbourhoods, Baba Taher and Zayd Ibn Ali, were added to the older neighbourhoods of Khorramabad (Posht Bazar neighbourhood and Darbdalakan)

- **The second stage of development**

With the development of the city, especially in the Safavid era (from the 10th century AH) and with the construction of buildings such as the Great Bridge, the city expanded to the north and east. New neighbourhoods of Sargerdab, Sadat and Valian emerged and buildings were built on the other side of the Great Bridge and the lands of Aliabad were spread throughout the city, including the caravansary on the lands of Aliabad built by Mirza Mohsen Muzaffar al-Mulk during the Qajar period (Ghasemi, 1378, 6).

- **The third stage of physical development (city and modernity)**

The effects of modernity on the city of Khorramabad are evident from the very beginning, along with other cities in Iran, including the preparation of plans for a city centred on Sabzeh Maidan, an east-west street from Aliabad to the beginning of Mesgaran and a north-south street from the beginning of Davazdah-Borji was built up to the lands of Gol-e Zard and also Khorramabad Grand Mosque was destroyed in these streets (Ghasemi, 1378, 8).

7.2.1. Territorial description

7.2.1.1. Climate and Urban Environment

The city of Khorramabad is formed in a valley, which is limited on every side to mountains or agricultural lands and gardens. Environmental and natural factors on the other hand have created a suitable environment for human habitation in this area, so that the history of human habitation in the Khorramabad valley reaches 30 to 40 thousand years ago and due to the appropriate environmental and natural factors, the city of It has been attracting the population for a long time and on the other hand, these environmental factors have limited the development of Khorramabad city to certain directions. Khorramabad city is located in 48 degrees and 21 minutes longitude and 33 degrees and 29 minutes latitude in valleys with an area of 30 square kilometres. This city is basically mountainous and its height above the general sea level is 1171 meters (Rashidian, 2002, 17).

The amount of annual rainfall in Khorramabad city is approximately 532.6 mm, which varies in different seasons of the year. So that the highest rainfall is related to winter, the amount of which is 260.4 mm. Due to the fact that Iran is located in a hot and dry region, more than 500 mm of rainfall in Khorramabad can be considered as one of the natural capacities of this city.

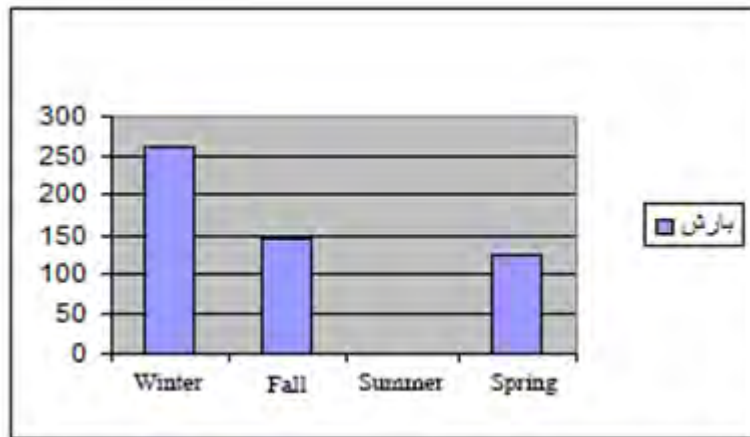


Figure 7.10: Comparison of rainfall in Khorramabad in different seasons of the year

Lorestan province due to its climatic diversity is ready to receive tourists in any season, so that 100 km north of Khorramabad has a cold climate, Khorramabad city has a temperate climate and 100 km south of Khorramabad has a warmer climate. Lorestan due to its mountainous nature and the existence of many rivers (there are 23 permanent rivers in Lorestan), has a large percentage of waterfalls in Iran, there are also large springs in this province. The most beautiful mountain lake in the country, Gohar is located in Lorestan, in addition, there are many other wetlands in this province. Also, the mountains and forests of this province can attract tourists in certain seasons of the year, so that the mountains of Lorestan have significant similarities with the Alps mountainous region (Mirzapour et al., 2014, quoted by Torabinejad, 2006) , But the tourism capabilities of Lorestan are not used.

Air Quality

Valley cities are usually formed of healthy air, especially if it is not an industrial area. it acts as a corridor that ventilates the air. The city of Khorramabad can also have clean air and this capability is suitable for the establishment of hospitals for the elderly, heart patients and other diseases that need clean air. It is also suitable for attracting tourists.

7.2.1.2. Biophysical characterization

In the city of Khorramabad, there are a number of rough nesses and hills that are suitable for creating parks and green spaces, and by constructing parks and green spaces in them, these places can be turned into recreational, cultural and tourist attractions



Figure 7.11: Topographic map of Khorramabad

On the other hand, the presence of hills and natural forms inside the city have also caused the separation of many neighbourhoods. Of course, in some cases, by creating a suitable use in them, they have become suitable environments. Like a hill on which a rock park has been created. By creating a park on it, in fact, this hill can be used properly, either the student park that has been created at the foot of the mountain, or the second lake of Kiev has been built in a place that was previously one of the problems of construction development in this part. It was from the city that with the creation of a lake park and waterfall in it, in fact, this place has become one of the attractions and leisure areas of this city.

Khorramabad city is located at 48 degrees and 21 minutes longitude and 33 degrees and 29 minutes latitude in valleys with an area of 30 square kilometers. This city is basically mountainous and its height above the general sea level is 1171 meters (Rashidian, 2002, 17).

Khorramabad city is located in the centre of Zagros mountain. This mountainous city, which is the most mountainous part of Lorestan province, is limited to Aleshtar from the north, Chegini from the west and Khuzestan from the south, and is bordered by Boroujerd, Dorud, Aligudarz and Chegini from the east. The distance from Khorramabad to Tehran is 491 km, to the border point of Qasr Shirin is about 400 km and to the waters of the Persian Gulf in the port of Khorramshahr is 1000 km (Bodetechnique Consulting Engineers, 2012).

7.2.1.3. Land use/ land cover

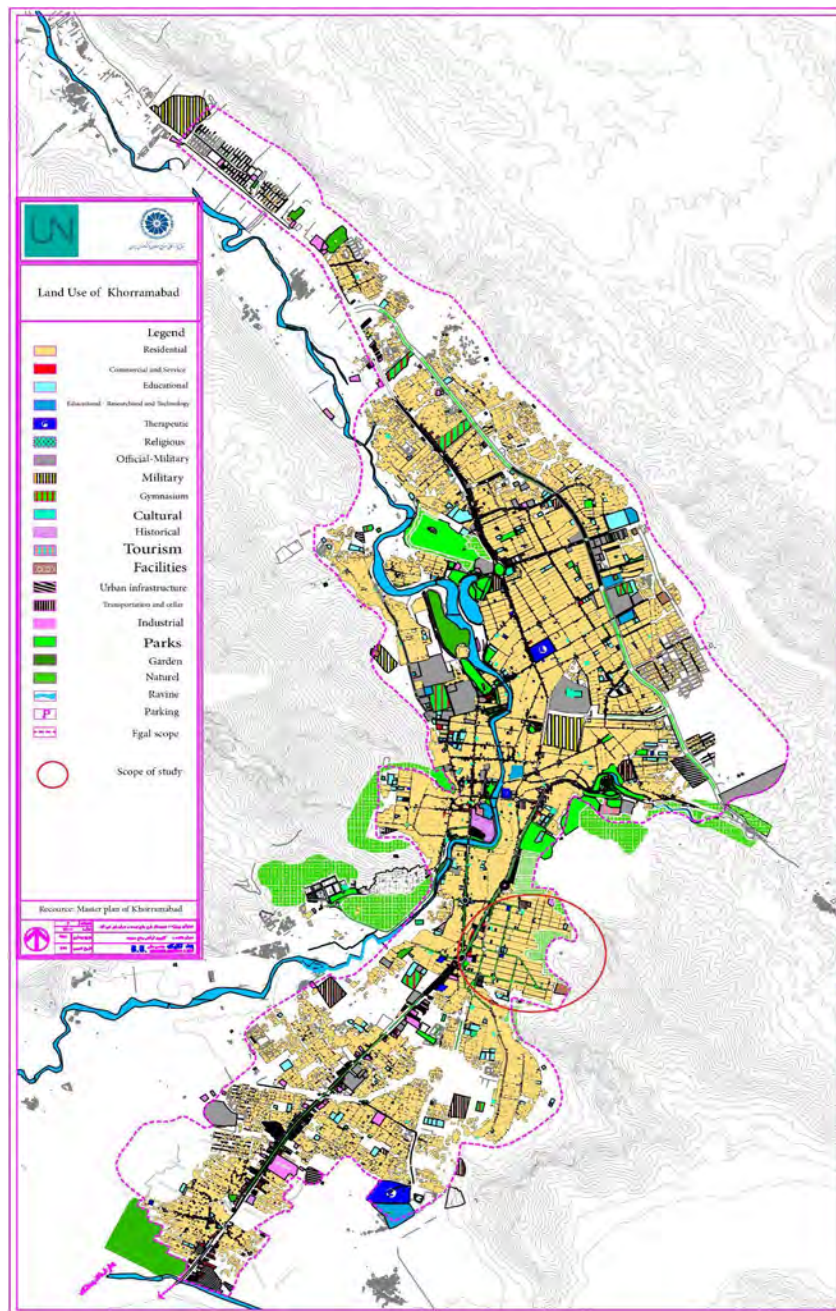


Figure 7.12: Land use

Many of Khorramabad urban facilities are related to previous years, and despite the multiplication of the city's population, nothing has been added to these facilities. The library, house of culture, green space, various industries, stadiums, etc. in the city of Khorramabad belong to the population of 100,000 people in the last few decades and do not correspond to the current population of Khorramabad. The mentioned infrastructures are all necessary for the cultural and economic development of the people of a city, which should be developed in proportion to the population of the city. Today, infrastructures such as public libraries, entertainment centres, scientific centres, etc. all determine the cultural status of the people of a city in the future.

Existing cultural, recreational, medical, etc uses are also concentrated and their distribution is not fair, and many public services are not considered in the new part of the city.

Lorestan province has a lot of forests due to its suitable climatic conditions, abundant water, and fertile soil, so that 885 thousand hectares of forests are located in this province and 32% of the area of Lorestan province is covered with forests, which is 6.4% of the country's forests.

7.2.1.4. Transportation network (urban dynamics)



Figure 7.13: Transportation network (and hierarchy)

7.2.1.5. Green structure and Biodiversity

Due to the greater economic importance of forest cover, we have only expressed the forest cover of the study area. Lorestan province has many forests due to its suitable climatic conditions, abundant water and fertile soil. So that 885 thousand hectares of forests are located in this province and 32% of the area of Lorestan province is covered with forests, which constitutes 6.4% of the total area of

the country's forests. The total forests of the Zagros are 4,749,000 hectares, 18% of which are located in Lorestan.

The most important forest species in the city of Khorramabad are Persian oak, kikum, almond, wild pistachio, sycamore, purple, wild pear, fig, Hawthorn, argon, elm, dandelion, walnut, apple, turmeric, etc (Mirzapour et al., 2014, citing the book of geography of Lorestan province, 2004, 28). 60% of the area of Khorramabad city is covered with forests and 18.7% of this city is covered by pastures (Statistics and Information of Lorestan Governorate, 2009).

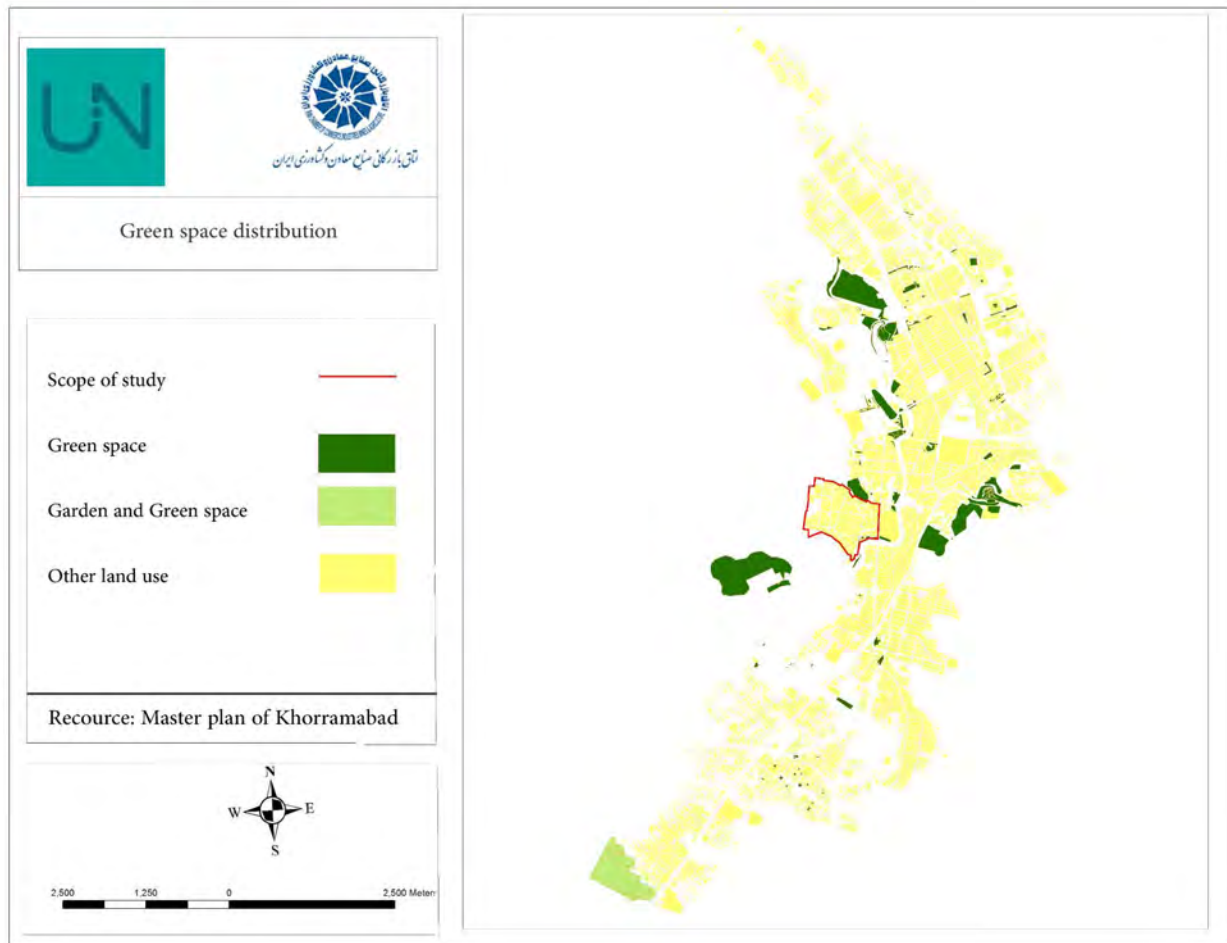


Figure 7.14: Green space distribution

7.2.1.6. Water management

Urban water management

According to the statistics obtained from the Water and Sewerage Department of Khorramabad city, until 2009, 11 wells with a flow of 462 litres per second have provided part of the water of Khorramabad city. However, with proper planning and management of water resources in Khorramabad, the city's water can be supplied from springs in the city.

Water availability

The city of Khorramabad is very rich in terms of groundwater and is located on an aquifer that has about 70 million cubic meters of water storage. Part of this huge reserve is extracted annually in the form of several springs.

Drought's risk/water scarcity

Due to the construction of a well to extract water in Khorramabad, if the groundwater is discharged more than the capacity of the groundwater, the ground may sink or fall at the same time as the water is empty, and as a result, the volume of the reservoir decreases, and less water can hold on.

Water quality

Khorramabad is located on the aquifer in terms of groundwater, which has about 70 million cubic meters of water storage, and this has led to many springs in the city with high discharge. Therefore, Khorramabad is one of the cities where all the water can be supplied from springs.

7.2.2. Social description

7.2.2.1. Demography

Demographic description, namely quantity, density (inhabitants per sq/km), population dynamics (how the population trend is developing or developed, i.e. increase/decrease/aging), genders, generations (average generation duration), life expectancy.

Khorramabad city has long been a place of attraction due to its geographical location and communication location, but the current population situation of Khorramabad city is the result of developments in recent decades. In the first general census of Iran, which was conducted in November 1956, the population of Khorramabad was 38676 people, and in the next census, which is related to 1966, the population of this city has increased to 59,578 people.

According to the official census (2011 census), the population of this city has reached 348,216 people. The population growth rate of this city in the years 2006 to 2011 was equal to 1.2 percent. In 2016, the population of Khorramabad was 373,416 people and the population growth rate from 2011 to 2016 was 1.4 percent.

7.2.2.2. Public services

The service sector is usually more widespread in cities than in villages and small suburbs. Especially since it is a city in the centre of the province, it is obvious that more services should be provided in it.

7.2.3 Economic description

In this Category, the data collected aim to provide information about the economic development of the city. Such data are collected at the scale of the city and at the scale of the study area. Data are related to standard economic indexes but also to new indicators which can help to evaluate the real situation of the city from an economic perspective.

The data collected by the cities allows to depict a picture of the economic situation of the city. Beyond many standard economic indexes (like average family income, employment rate, educational facilities, etc..), other more actual indicators are investigated and evaluated (like short-term contract rate, the importance of the non-profit sector, competitiveness, etc..).

All this information can help to identify study areas where healthy corridors can be implemented, improving the quality of life of the people.

The investigations are based on some wealth indicators related to income, current expenditure and living conditions.

The data collected allows us to take into account also the degree of competitiveness in the city and its capability to create, maintain and redistribute wealth among its inhabitants. An important focus is on the labour, the workforce and the conditions of workers in the different sectors.

In such analysis also the innovation, the research of innovative procedures and amounts of the investments related to modernization are approached and give important information on the “state of health” of the city.

Some indicators regarding the degree of educational facilities, kindergartens, schools and in general cultural facilities provide fundamental insights to better evaluate the real situation of citizens.

Poverty (index, rate, percentual...)

There is a lot of unemployment in the city of Khorramabad, which is a reflection of the economic situation of the citizens of Khorramabad. The high number of people covered by the Welfare Organization, the Imam Khomeini Relief foundation, etc. all indicate the low economic situation of the people of this city. According to former mayor of Khorramabad, approximately 37% of Khorramabad citizens are covered by the Imam Khomeini Relief foundation, Welfare Committee or other support institutions (Mirzapour et al., 2014, quoting the former mayor of Khorramabad in an interview with Bamdad Lorestan).

Housing affordability

According to the statistics related to the 2016 census, there are 3,697 residential parcels and 3,864 residential units in the studied area, among which 1,722 units (45.86%) are owned by the residents and 1,917 units (49.6%) are rental. 166 units have other circumstances (rented for free, family home, etc.). and the ownership of nine units is unknown.

7.2.3.1. Employment

Activity and Employment rate

Many of the problems of Khorramabad can be considered as a consequence of the existence of unemployment in this city. It has become like other cities. Issues such as the very severe situation of emigration that happens to the educated class in the city of Khorramabad and in Lorestan province in general and has caused people to migrate to development hubs and other cities. This phenomenon also exists among the uneducated people of Lorestan province, which causes seasonal and short-term migration of some people in the region to a metropolis such as Tehran. But since the migration of the educated class is almost permanent and the city of Khorramabad is forever deprived of the blessings of these citizens who must determine the future of the city, this issue is very much for the city of Khorramabad and other cities of Lorestan province and it is irreparable.

Lorestan province was the second province in the country in terms of unemployment in 2006 and in 2011 this position was repeated, which according to the 2011 census, was 19.2. In the workforce census, which was carried out simultaneously with the whole country in the spring of 2012 in Lorestan province, the figure of 19.2 percent unemployment again was repeated (Lorestan Governor's Office of Statistics and Information, 2012).

7.2.3.2. Activity sectors

Agriculture production

In 2002, there were 13560 workshops in Khorramabad city, of which only 24 workshops were related to agriculture and fisheries, i.e., about 0.177% of these workshops have been allocated to them (BodeTechnique Engineering consultant, 2012). According to the 2006 census, 27,476 people (20.7%) of the residents of Khorramabad were employed in agriculture, hunting, forestry, and fisheries.

Khorramabad city in the year 2006, with 17.4% of total grain production (rice, wheat, and barley) in Lorestan province, is the third largest producer of grain in the province and with an annual production of 763 tons of fish and 11.4% of total fish production, the fifth largest production has had this product in Lorestan province. Also, with the production of 13,170 tons of red meat this year and 22.5% of red meat production in the province, it has been the first in the production of this red meat product in the province. In chicken production with an annual production of 8438 tons and 28.6% of the province's production, is in the second place and with the production of 2.5 tons of honey per year and 28.7% of the total province, is in the first place, with the production of 1,200 tons of eggs this year and 21.82% of the total production of this product, the second place, fruit 10,204 tons and 21.7% of the total province was first and in milk production with an annual production of 57,100 tons and 19.8% of milk produced in the province was second among the cities of the province (General Statistics and Information Office, 2007).

Cultural and creative industries

According to the workshop census of 1981, there were 1877 industrial workshops in Khorramabad city, which accounted for 13.842% of the total workshops in the three economic sectors of Khorramabad city, which is a small percentage. It should be noted that in 1981, more than 66% of Khorramabad urban community workshops had one employee.

3.2% of workshops 10 to 19 people, 1.084% of workshops 20 to 29 people, 9.66% of workshops 30 to 49 people, 4.09% of workshops 50 to 99 people, and 2.58% of workshops 100 people and more employment. As it can be seen from the statistics, most of the factories in Khorramabad are one-person and the least of them are 100 people and above (Technique Consulting Engineers, 2012).

In the 2006 census, 28,497 people (21.5%) of the working population of Khorramabad were employed in the industrial sector (Statistics Center of Iran, 2006).

Tourism characterization

Lorestan due to its mountainous nature and the existence of many rivers (there are 23 permanent rivers in Lorestan), has a large percentage of waterfalls in Iran, there are also large springs in this province. The most beautiful mountain lake in the country, Gohar, is located in Lorestan.

In the city of Khorramabad, there are ruggedness and hills that are suitable for creating parks and green spaces, and by constructing parks and green spaces in them, these places can be turned into recreational, cultural and tourist attractions.

Lorestan has a high history and culture, this land has always influenced the politics, culture and art of Iran (Mirzapour, 1392, 1).

This region is full of historical tourist attractions, including Kalmakreh Cave, which was discovered in 1989, which according to Professor Aman Elahi is the largest treasure in the world and belongs to the civilization of New Elam, as well as 64 historical bridges in Lorestan. There are some of them, including Shapuri Bridge in the south of Khorramabad, one of the architectural masterpieces that dates back to the Sassanid era.

Also, the Gerdab-Sangi and the castle of the celestial spheres, which are in the same period as Shapuri Bridge, are other tourist attractions of Khorramabad. - are the largest in the world and are related to 2500 to 100 BC, examples of which can be seen in the Archaeological Museum of Khorramabad (Mirzapour et al., 2014).

Also, the Gerdab-Sangi and the Falak-ol-Aflak castle, which are in the same period as Shapuri Bridge, are other tourist attractions of Khorramabad. The most important is the bronze civilization of Lorestan, which today are the tools of bronze objects discovered in this province adorn the great museums of the world and are related to 2500 to 100 BC, examples of which can be found in the Archaeological Museum Khorramabad (Mirzapour et al., 2014).

7.3. Parishes/quarters levels

7.3.1. Territorial description

The studied areas include the oldest neighbourhoods of Khorramabad and also extensions in recent decades, which are located in the centre of the Khorramabad Valley and have developed to the west of the city. GelSefid and Bajgiran neighbourhoods are located on the outskirts of the central part of Khorramabad. These neighbourhoods are spread linearly in the southwestern part of the old texture from the vicinity of Khezr Cemetery to the Posht bazaar neighbourhood. These neighbourhoods are not very large, it reaches to DarbDalakan neighbourhood from the north, from the south to Khezr cemetery and the roughness of Khorramabad city. Gelsefid inhabitants in the past were mostly gypsies who were known as Luti. The area of Posht Bazaar and other neighbourhoods is 83.3 hectares, and their population is 12,576 people.



Figure 7.15: Case studies

7.3.1.1. Land use/ land cover

As it is clear, residential land use has occupied the area of the Posht Bazaar and other neighbourhoods. After that, due to the location of the bazaar, commercial land use has a large area. As it is clear, the area and distribution of green space in the neighbourhoods is low. Primary schools are centralized in the northwestern part of the neighbourhoods, The area for educational land use is acceptable. Vacant lots are scattered in different parts of the neighbourhoods, making it easier to develop the neighbourhood.

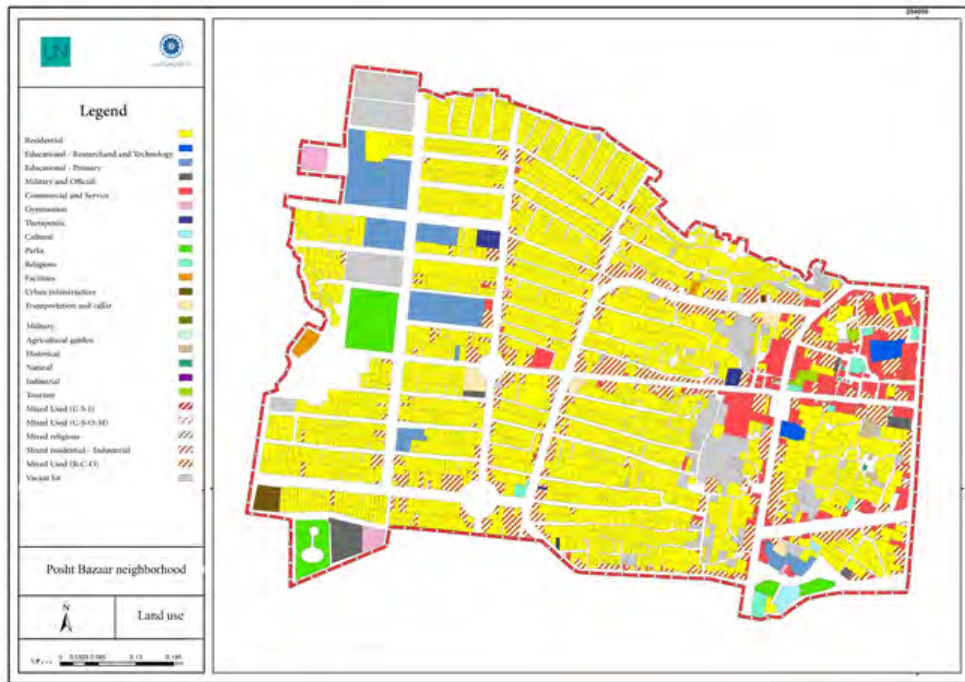


Figure 7.16: Land use of Posht Bazaar and other neighbourhoods

As it is clear, residential land use has occupied the area of the Gelsefid neighbourhood more, due to the fact that the texture of the neighbourhood is very worn, Wasteland and vacant lots have a large area. As it is clear, the area and distribution of green space in the neighbourhood is low.

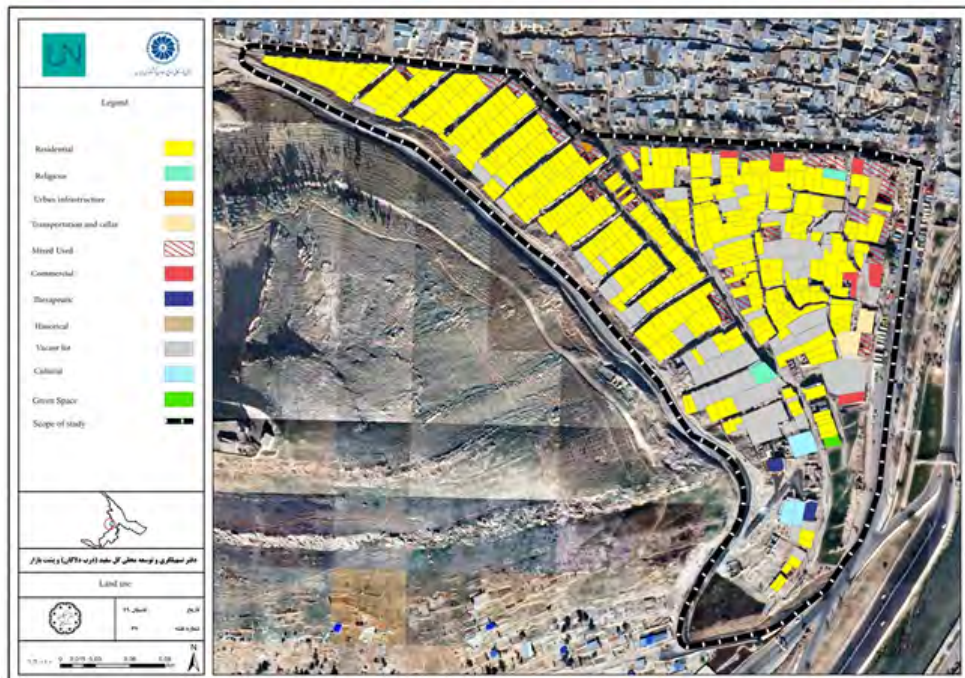


Figure 7.17: Land Use -Gelsefid and bajiran neighbourhoods

As shown in this map there are more vacant lots in the southwestern part of the neighbourhood, which greatly threatens the security of the Posht-Bazaar neighbourhood, but has provided a good opportunity for future development of the neighbourhood.

7.3.1.2. Transportation network and services

Road network (and hierarchy)

As shown in this map the type of access network is designed in the new part of the Posht Bazaar neighbourhood with a grid type access network, while the other neighbourhoods have an organic and non-designed access network.

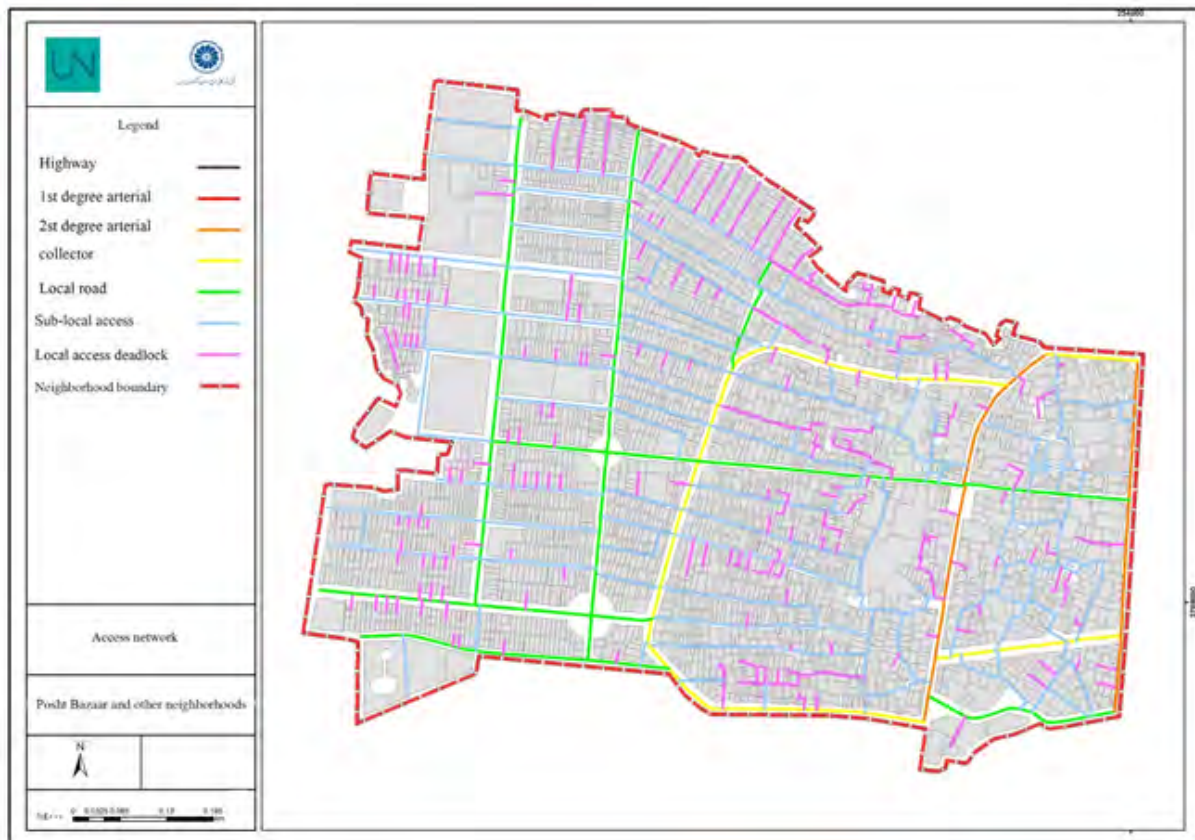


Figure 7.18: Access network of Posht Bazaar and other neighbourhoods

As shown in this map the type of access network in the Gelsefid neighbourhood has an organic and non-designed access network.

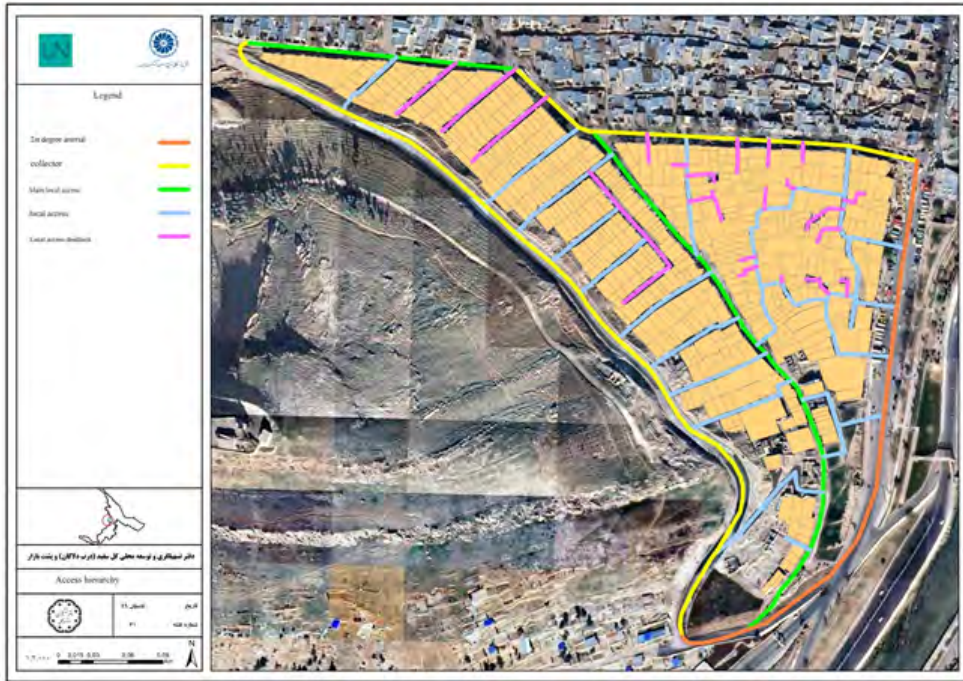


Figure 7.19: Access network- Gelsefid and Bajgiran neighbourhood

7.3.1.3. Green Infrastructure and Biodiversity

As shown in this map the variety of used plants in the neighbourhood is acceptable, but due to the high density of the Posht Bazaar and other neighbourhoods, the area of green spaces is low.

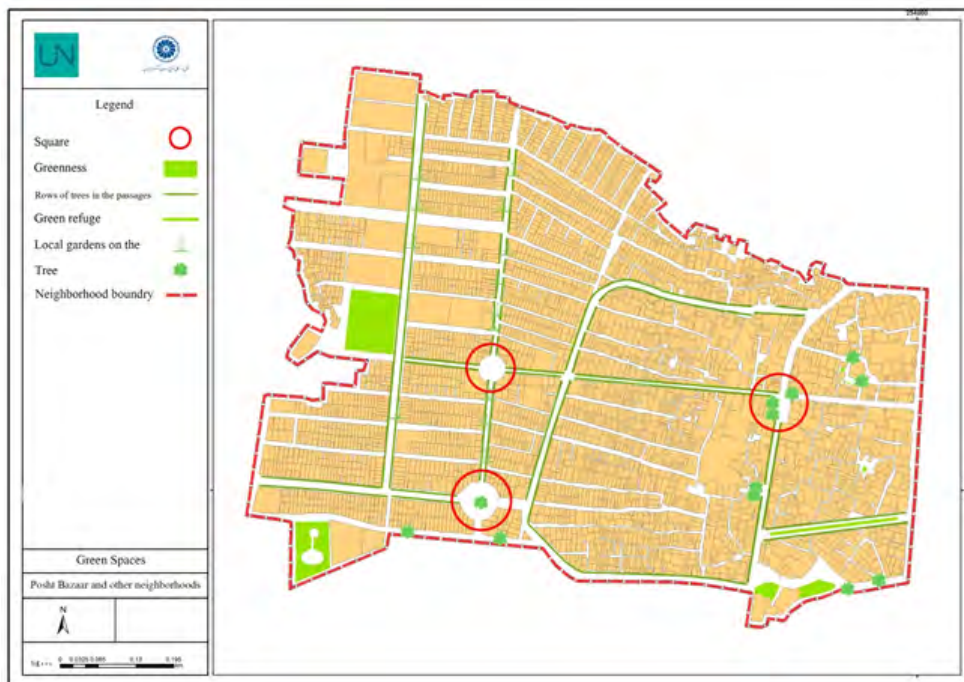


Figure 7.20:

Distribution of green spaces in Posht Bazaar and other neighbourhoods

As shown in this map the variety of used plants in the neighbourhood is acceptable, but due to the high density of the Gelsefid neighbourhood, the area of green spaces is low.

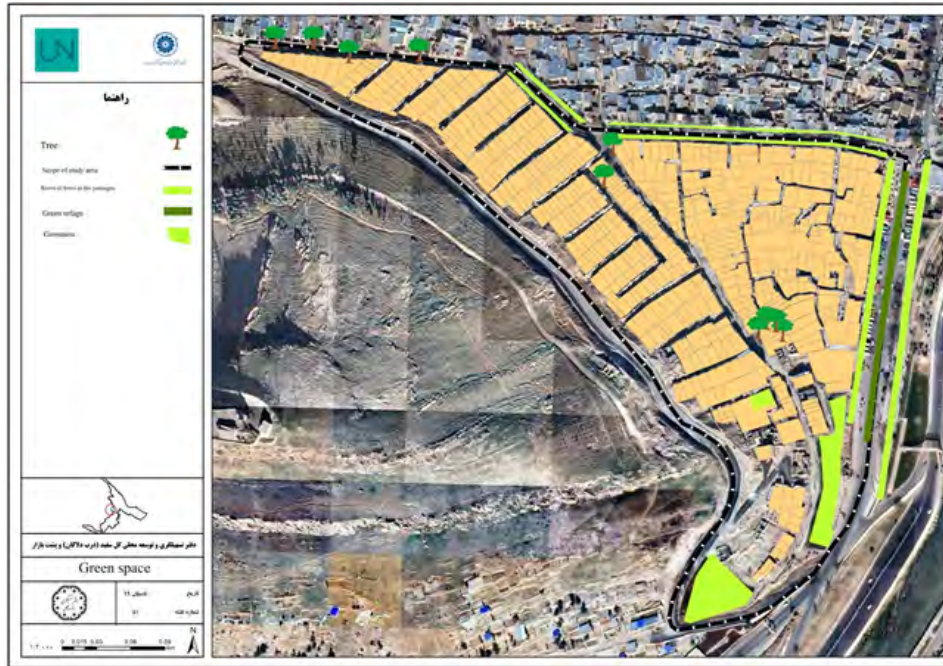


Figure 7.21: Green space- Gelsefid and bajgiran neighbourhood

7.3.2. Social description

There are informal settlements in many areas of Khorramabad, and they have created various problems in terms of the way and quality of life for their residents; Gel Sefi, Posht bazaar and other neighbourhoods that are the scope of URBiNAT project are among the suburban areas in Khorramabad. Given the many issues and problems, especially the increasing social damage in these areas, the need to pay attention to their issues and problems is of great importance. Below we will have a brief look at some of the social indicators of the neighbourhood behind the market.

7.3.2.1. Demographic

Demographic description, namely:

According to the 2016 census, the total population of the study area is 12,576 people, of which the total number of men is 6,345 people and the number of women in the neighbourhood is 6,066 people. The study area has 3945 households, and the household size is 3.2.

Number of people in the family	Number of households	Number of population		
		Male	Female	Total
3945	3.2	6345	6066	12576

Table 7.1: Demographic description

Presence of Vulnerable groups in the area:

There are a number of popular volunteer groups in these neighbourhoods, so many workshops were held with their cooperation.

Cultural/Ethnic diversity:

Education/Literacy:

The population aged 6 years and older in the studied neighbourhood is 11,468 among which 5,757 are male and 5,711 are female. The number of literate men is 4,911 and the number of illiterate men is 846 according to the 2016 census. Thus, 85.3% of the men residing in the studied area are literate and 14.7% are illiterate. The number of literate women in the neighbourhood is 4,287 and the number of illiterate women is 1,424. The literacy percentage of women is 75.1, and 24.9% of them are illiterate. Table 5 indicates, the illiteracy statistics of women is higher than men. The reason for the difference in literacy statistics between men and women can be traced back to the attitudes of the residents and the relative social restrictions for women. Moreover, 2,360 people residing in the area are students.

Housing conditions:

According to the statistics related to the 2016 census, there are 3,697 residential parcels and 3,864 residential units in the studied area, among which 1,722 units (45.86%) are owned by the residents and 1,917 units (49.6%) are rental. 166 units have other circumstances (rented for free, family home, etc.) and the ownership of nine units is unknown. Considering that around half of the residents in the studied neighbourhoods are tenants, it can be concluded that a large portion of the residents in this area have migrated from other neighbourhoods and regions to this region of the city. The cheaper rents compared to other regions of the town is one of the reasons encouraging people to move and reside in these such neighborhoods. In the sampling carried out in the studied areas with 400 people in February 2021, the results were as described in the table.

Distribution of respondents / House ownership status	Number	Percentage
Owner	215	53.7
Rent / Mortgage	172	43
Organizational	1	0.25
Relatives' house	7	1.7
Other	2	0.5
Unanswered	3	0.75
Total	400	100

Table 7.2: Housing conditions

Migration rate:

According to the 2016 census, 130 people out of the total population of 12,576 people in the area, about (1.03) percent have a residence history of less than 5 years and are immigrants.

According to the statistics of the 2016 census and URBiNAT sampling in 2020, the studied areas are migratory, so that in recent years the migrant population has replaced the original inhabitants of

this area. and these neighbourhoods have lost part of their native population each year. In the sampling carried out in the studied areas with 400 people in February 2021, the results were as described in the table.

Distribution of respondents	Number	Percentage
Migrate		
Yes	7	1.75
No	356	89
Unanswered	37	9.25
Total	400	100

Table 7.3: Migration rate

Cultural rate:

In the sampling carried out in the studied areas with 400 people in February 2021, the results were as described in the tables.

Respondents' use of television and radio programs during the day and night

The average in the table below is in the form of a Likert scale with a range of 1 to 6 and an average of 3.5. The findings of Table show that the participants in this study use domestic TV an average of 4.45 out of 6, which is higher than the average (3.5). It should be noted that the average rate of respondents' use of satellite TV networks and radio is 1.20, which is lower than the average (3.5).

Indicator		Not at all	Less Than 30 min	31-60 min	61-90 min	91-120 min	More than 120 min	Average (1-6)
TV	%	4.3	9.9	14.2	19.2	12.7	39.7	4.45
Satellite TV Networks	%	64.2	6.6	8.6	6.9	8.6	5.1	2.04
Radio	%	86.3	8.1	4.6	0.5	0.5	-	1.20

Table 7.4: Respondents' use of television and radio programs during the day and night

The amount of newspaper and magazine usage (both printed and on the internet) in terms of hour

Findings from the table indicate that 77/2 percent of participants in this study do not read newspapers during the month. 14 percent of them took fewer than 30 minutes, 3/5 percent 31 to 60 minutes, 1/7 percent 61 to 90 minutes, 0/5 percent 91 to 120 minutes and 1 percent more than 120 minutes read the newspaper during the month. For different social networks existence and also news sites and ...in internet the scale usage of newspaper in paper has decreased in most areas. But as indicated in data of tables 77,2 percent of responsive people do not read any newspapers (such as in paper or on the internet) the reason of this subject is also related with economic situation

and lifestyle and also cultural and social factors and not all individual having access to smartphones and internet.

Distribution of Respondents Newspapers and magazines	Number	Percentage
Not at all	309	77.25
Less Than 30 min	56	14
31-60 min	14	3.5
61-90 min	7	1.75
91-120 min	2	0.5
More than 120 min	4	1
Unanswered	8	2
Total	400	100

Table 7.5: The amount of newspaper and magazine usage (both printed and, on the internet) in terms of hours

Respondent's access to internet

Findings written in the table indicate that 73/7 percent of respondents have access to the internet. even though 25/2 percent of them have not access to internet. The main reason of not having access to internet is because of economic inability and for buying smartphone and also inability (not having skills) of using smart phone in elder ages.

Distribution of Respondents Access to the Internet	Number	Percentage
Yes	295	73.75
No	101	25.25
Unanswered	4	1
Total	400	100

Table 7.6: Respondent's access to internet

Respondents' use of the Internet during the day and night

Data shown in the table indicates that 14/9 percent of respondents in home, 3/6 percent in internet café, 0/7 percent in work or education places and 80/9 percent surf internet with smartphone.

Distribution of Respondents	Number	Percentage
Rate of usage		
Not at all	65	18.8
31-60 min	64	18.5
61-90 min	131	37.9
More than 120 min	86	24.9
Total	346	100

Table 7.7: Respondents' use of the Internet during the day and night

How respondents use the Internet

The data in Table shows that 14.9% of respondents use the internet at home, 3.6% in Internet cafes, 0.7% at work or school and 80.9% of respondents use the Internet by a smartphone. The most usage of the internet in researched local areas, is within smartphones, and also in internet café, in order to fulfil administrative registration.

Distribution of Respondents	Number	Percentage
How to use		
Home	45	14.9
Internet Cafe	11	3.6
Work or study	2	0.7
Smartphone	245	80.9
Total	303	100

Table 7.8: How respondents use the Internet

Respondent's studying non-academic book

Data shown in the table indicates that 26/2 percent of respondents read non-academic books and 73/2 percent of them do not read non-academic books. In other words, only 26/2 percent of respondents have non-academic studies and others have not any kind of non-academic studies. Low level of education and also the cultural situation of citizens in these areas, inaccessibility to

local libraries and not having enough time and leisure time for reading because of job's conditions are some of the important reasons for not being enthusiastic to study in these areas.

Distribution of Respondents	Number	Percentage
Study of non-textbooks		
Yes	105	26.25
No	295	73.25
Total	400	100

Table 7.9: Respondent's studying non-academic book

Number of books read by respondents during the month

The research findings of Table show that out of 400 participants in this study, only 105 of them expressed the amount of reading non-textbooks during the month, 43.8 Percentage of respondents read one book, 24.8% of them read two non-textbooks, 27.6% read three textbooks and 3.8% of them read four non-textbooks during the month.

Distribution of Respondents	Number	Percentage
Number of books		
One	46	43.8
Two	26	24.8
Three	29	27.6
Four	4	3.8
Total	105	100

Table 7.10: Number of books read by respondents during the month

Religion:

In general, Khorramabad and the studied neighbourhoods are relatively uniform in terms of religion and most residents are Shiite Muslims. Table 6 indicates that all respondents were Muslims among which 95.75% are Shiite and 0.5% are Sunnis, who are also migrants. In the sampling carried out in the studied areas with 400 people in February 2021, the results were as described in the tab 7.11.

Distribution of respondents Religion	Number	Percentage
Islam (Shiism)	383	95.75
Islam (Sunni)	2	0.5
Unanswered	15	3.75
Total	400	100

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Table 7.11: Religion

Family description:

The data in Table 7.12 shows that the minimum number of households in the residential unit of respondents is 1 household and the maximum number is 8 households. The average number of households in their housing unit is 1.52. The obtained standard deviation is 1.20, skewness is 2.82 and elongation is 8.59. According to the statement's respondents, an average of 1.5 households resides in each residential unit, which means that the number of the households is 1.5 times the number of residential units and more than one household lives in a number of housing units due to socio-cultural conditions as well as the households' economic situations and their inability to provide separate housing. This had resulted in increased density and higher population per room. In the sampling carried out in the studied areas with 400 people in February 2021, the results were as described in the table.

Household Size	Number	Minimum	maximum	mean	standard deviation	skewness	Kurtosis
	388	1	8	1.52	1.20	2.82	8.59

Table 7.12: Family description

The gender ratio

Out of the population of the studied area, 6,345 are male and 6,066 are female. Around 50.54% of the population is made up of men and 49.55% is made up of women, resulting in a gender ratio of 104.6 which means there are 104.6 men for every 100 women living in the studied area.

7.3.2.2. Safety and health

Health services:

In the sampling carried out in the studied areas with 400 people in February 2021, the results were as described in the table.

Distribution of respondents / Health insurance card	Number	Percentage
Yes	285	71.25
No	107	26.75
Unanswered	8	2
Total	400	100

Table 7.13: Health insurance card

Distribution of Respondents / Type of health insurance card	Number	Percentage
Health Service insurance	52	17.2
Social Security insurance	118	39.1
Iranian Health Insurance	110	36.4
Village insurance	6	2
Other	16	5.3
Total	302	100

Table 7.14: type of health insurance card

Safety and criminality:

Distribution of Respondents / The crime rate of the neighborhood	Number	Percentage
Excellent	11	2.75
Low	39	9.75
Neither good nor bad	109	27.25
Bad	125	31.25
Very bad	114	28.5
Unanswered	2	0.5
Total	400	100

Table 7.15: Safety and criminality according to the residents

Security:

It can be concluded from the statistics demonstrated that the studied neighbourhoods have high crime rates according income in the economic aspect and the presence of vacant and abandoned spaces such as abandoned buildings, narrow pathways, the lack of monitoring, the lack of proper lighting at the night, and overall the presence of indefensible spaces in the neighbourhood in the

physical aspect are the main reasons for the crime rate in the neighborhood. to most of the residents and the feeling of security among the residents is quite low.

7.3.2.3. Participation

Political participation

Voluntarism (volunteering, associative movement):

The average index of social participation in the neighbourhoods is 22.88, which indicates that this index is low. The people of the neighbourhoods have little formal social participation and little desire to participate in associations and organizations. But the level of cooperation and participation in informal groups is moderate. Registered studies in table number 15 shows that 10,1 percent of respondents have not participated in neighbourhood communal work. Likewise, 21 percent of respondents explained that they had few partnerships, 43,5 percent of individuals had an average participation. Also, if it will be possible to participate in quarter affairs, only 5,8 percent of respondents were not willing to participate and the rest will be ready for participation in quantity of little, average and high rank. The deduction of this subject is that less situations have been created so far for individuals' participation in public work of the neighbourhood and if it will be possible to establish these situations and also the existence of plans and communal work, many people will be eager to participate.

Indicator		Not at all	Low	Mean	High	Very High	Average
How much do you involve in your local affairs?	%	10.1	21	43.5	24.1	1.3	2.85
To what extent do you want to participate if you have the opportunity to participate in local affairs?	%	5.8	22.8	40	29.9	1.5	2.98

Table 7.16: Voluntarism

Social connections:

Having been collaborating with a national urban facilitation project by the Iranian ministry of Interior throughout the country including Khorramabad, URBiNAT project in Iran is taking benefit of interacting with the local urban facilitation office of Khorramabad. There is a wide network of these facilitation offices in many cities of Iran, which has made a professional communication system between cities of the country, in terms of sharing urban regeneration concepts and

activities, including URBiNAT tasks which are now understood by some other cities, as well as Khorramabad.

Furthermore, representatives of the URBiNAT team of Iran are actively participating in regional and international related events for co-learning the project context and achievements by other project members. For instance, Iranian team has participated in the international conference of “Water and Humanity” in Oman on Nov 12-13, 2019, to share the outcomes of holding the URBiNAT local workshop in Khorramabad with other invited participants from the region and EU.

7.3.2.4. Public services

Mobility (buses, trains, cars, bikes, etc.):

Respondents’ access to neighbourhood facilities and amenities

Data from Table indicate that fire services have the best accessibility in the neighbourhood with an average of 4.55%. After that, the access of the residents of the neighbourhood to senior and junior high schools are in the next ranks with 4.19% and 4.17, respectively. Besides, the shortage of spaces to hold traditional ceremonies, proper street pavement, and taxi stations ranked the lowest in terms of accessibility to neighbourhood residents. It must be mentioned that the table above describes respondents’ needs in addition to indicating their access to neighbourhood amenities. The average range for the investigation of the concept of neighbourhood residents’ needs in the range of 0 to 5 is 2.5. The data in the table above indicate that neighbourhood amenities have poor accessibility in many cases, and the most important needs of the neighbourhood residents include public, cultural, and recreational land use as well as basic urban amenities such as pavement, etc.

Indicator		Not at all	Very Low	Low	Neither high nor low	High	Very High	Average	Needs of local Inhabitants (0 to 5)
elementary School	%	1.8	11.1	17.9	35.6	27.8	5.8	3.93	2.72
Middle school	%	1.3	9.9	8.6	38.8	33	8.4	4.17	2.36
High School	%	1.5	7.9	10.9	38.9	30.5	10.2	4.19	2.41
Park	%	3.1	14	13	33.3	28	8.7	3.95	2.83
gym	%	3.3	14.7	17.2	39.6	18.3	6.9	3.75	2.87
House of Culture / House of homework / Cultural Center	%	41.3	21.5	12.8	13.8	9	1.5	2.32	3.79
public Library	%	29.7	21.5	20.8	16.7	9.2	2.1	2.60	3.32
Open spaces for festivity	%	9.2	15.3	12.8	43.5	16.4	2.6	3.50	2.73
Cleaning and beautifying the neighborhood	%	7.2	12.4	15	30.5	32.6	2.3	3.75	2.81
A police station	%	11.4	5.9	10.1	34.6	28.4	9.6	3.91	2.80
Fire services	%	1.3	3.6	11.4	29.7	29.7	24.3	4.55	2.75
Proper lighting of passages	%	1.9	16.1	12.2	39.6	24.1	6.2	3.86	2.94
Addiction treatment clinics and centers	%	14.8	19	16.4	33.1	14.8	1.8	3.19	2.68
public toilet	%	68.5	10.5	5.9	8.7	4.3	2	1.75	3.45
Ubersm	%	66.6	14.1	7.7	7.2	3.9	0.5	1.69	3.56
Municipal sewage network	%	1.8	15.4	19.3	39.3	19.3	4.9	3.73	2.90
trash bin	%	4.9	14	15.3	31.2	29.4	5.2	3.81	2.70
public parking	%	14.2	17.1	14	25.1	24.5	5.2	3.44	2.29
Asphalt suitable for the street	%	13.4	14.9	7.3	29.6	30.1	4.6	3.61	2.82
Bus and minibus stations	%	27.4	26.1	15.6	27.4	1.5	2	2.55	2.90
Taxi stations	%	7.9	11.5	20.4	32.9	24.7	2.6	3.62	2.80
Clinic (Hospital)	%	39.4	9.4	10.2	21.6	17.3	2	2.74	3.34
pharmacy	%	0.8	19.3	16.8	33.8	19.5	9.9	3.81	3.09
Internet Cafe	%	6.4	26.2	21.1	27	16.5	2.8	3.29	2.73
Police 10+	%	62.8	22.9	8.7	4.3	0.3	1	1.59	3.87
E-Government Services Database	%	61.7	25.1	8.1	3.8	1.3	-	1.57	3.87
Electronic Service Office of the Judiciary	%	70.3	18.3	7.1	3.3	0.5	0.5	1.46	4

Table 7.17: Access and needs of respondents to services and facilities in the neighbourhood

Indicator		Not at all	Low	Mean	High	Very High	Average (1-5)
Do you find the services and space of the neighborhood suitable for children?	%	6.6	45.6	35.9	10.4	1.5	2.54
How much are the services and space of the neighborhood suitable for the elderly?	%	8.3	28.8	26.3	32.3	4.3	2.95
Do you find the services and space of the neighborhood suitable for the disabled?	%	27.8	32.3	20.2	13.9	5.8	2.37
How much are the services and space of the neighborhood suitable for women?	%	9.8	28.8	36.1	17.7	7.6	2.84

Table 7.18: Access of respondents to services and facilities in the neighbourhood

Indicator		Very dissatisfied	dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Average
From your health	%	2	5.8	7.3	41.5	39.7	3.8	4.22
From the health status of your family	%	1.8	5.3	6.8	31.1	51.1	3.8	4.35
From the amount and type of nutrition	%	4.6	8.4	19.3	49.9	17.6	0.3	3.68
From your job	%	10.9	10.7	27	35.6	14.5	1.3	3.35
From your income	%	11.9	11.6	21.3	42.5	12.4	0.3	3.32
From your housing	%	5.6	15	26	34.6	18.6	0.3	3.46
From your living equipment such as refrigerator, TV and ...	%	1.8	12.5	27.1	44.8	13.8	-	3.56
From the transportation facilities of the neighborhood	%	1.8	17.1	23.5	40.3	16.3	1	3.55
The quality of services in the neighborhood health centers	%	2.3	16.8	27.8	35.6	15.2	2.3	3.51
From entertainment centers in the neighborhood	%	7.9	16.2	24.4	35.6	14.1	1.8	3.37
From the educational facilities of your neighborhood	%	6.2	14.5	20.9	36.4	18.3	3.6	3.57
From the level of security in the neighborhood	%	3.9	16.2	19.8	38.8	18	3.3	3.60
Your impact on the neighborhood	%	3.8	15.1	21.8	40.5	17.2	1.5	3.56
From your neighborhood in general	%	2.6	7.5	11.6	33.9	38	6.4	4.16
From your local customs	%	1.6	4.9	13.7	33.9	36.4	9.6	4.27
From your language and accent	%	-	0.5	1	10.9	60.9	26.8	5.12
From being Iranian	%	0.3	0.8	1.8	13.1	56.3	27.8	5.07

Table 7.19: Satisfaction with public services

7.3.3. Economic description

The data to be collected at parish and neighbourhood level are almost the same as those collected at the city level. The purpose is to have data at a lower level, for assessing areas in the city. These data will be also useful for the study of the corridors, the contextualization of specific city areas in the wide city context.

7.3.3.1. Income and poverty

Ownership of durable assets (e.g., rate of owners of their residence, rate of renters, shared accommodation, free accommodation)

According to the statistics related to the 2016 census, there are 3,697 residential parcels and 3,864 residential units in the studied area, among which 1,722 units (45.86%) are owned by the residents and 1,917 units (49.6%) are rental. 166 units have other circumstances (rented for free, family home, etc.). and the ownership of nine units is unknown. Considering that around half of the residents in

the studied neighbourhoods are tenants, it can be concluded that a large portion of the residents in this area have migrated from other neighbourhoods and regions to this region of the city. The cheaper rents compared to other regions of the town is one of the reasons encouraging people to move and reside in these such neighbourhoods.

Distribution of respondents Living expenses	Number	Percentage
Less than two million Tomans	43	10.75
Two million to four million Tomans	306	76.5
More than four million Tomans	42	10.5
Unanswered	9	2.25
Total	400	100

Table 7.20: Current expenditures (electricity, gas, food, etc.)

Housing affordability

Considering that around half of the residents in the studied neighbourhoods are tenants, it can be concluded that a large portion of the residents in this area have migrated from other neighbourhoods and regions to this region of the city. The cheaper rents compared to other regions of the town is one of the reasons encouraging people to move and reside in these such neighbourhoods.

Distribution of Respondents Type of materials	Number	Percentage
Urban gas	394	99.5
Cylinder gas	1	0.25
Unanswered	5	1.25
Total	395	100

Table 7.21: Houses heating system

7.3.3.2. Innovation

To support communication, the Iranian team put up a website in Farsi as www.URBiNAT.ir, to produce project content in Persian language for the local citizens who are rarely able to read and speak in English. All project information and news are published on this website to make a better connection with all interested parties throughout the country.

Moreover, following the involvement of ICC in WP6 of URBiNAT, an URBiNAT booklet translated into Persian language has been prepared to distribute between interested people and related authorities of the city. These booklets are shared in print or electronic versions in our URBiNAT related meetings.

Also due to the high penetration rate of Instagram as one the most popular social media application by youth people of Iran, including the local citizens of the pilot neighbourhood in Khorramabad, an Instagram page has been launched as [URBiNAT.ir](https://www.instagram.com/URBiNAT.ir) to share the information, news, pictures, and videos of the project implementations steps in Khorramabad, and to connect with other related projects and institutes, nationally and internationally.

7.4. Stage 2 - Local diagnostic report: methodologies

Khorramabad hosted a four-day workshop from Oct 21 to Oct 24 by collecting different disciplines together through participation of EU URBiNAT members in addition to interdisciplinary experts from Iran.

After an official opening ceremony on Oct 21 with the presence of all stakeholders of the city including the mayor, local authorities and citizens, the workshop continued with some training sessions about Local Diagnostic, Co-creation process and NBS catalogues in Lorestan chamber of commerce. Then the participants started visiting from the old neighbourhood of the city which was selected as the pilot neighbourhood for the project.

Visiting one primary school of girls and another secondary school of boys were other activities of the workshop. European and Iranian participants applied an interview-game with pupils about nature-based solutions such as imagination games, photo voice, as well as co-drawing to extract the indicators of an ideal city and neighbourhood from local pupils. Students received gifts at the end such as T-shirts, notebooks, and colourful pens with URBiNAT logos to share the story of their practiced games with their friends and families as the URBiNAT ambassadors.

Workshop participants then continued mapping the neighbourhood and its challenges through a collaborative process, by visiting different districts of the old Khorramabad neighbourhood and interviewing different groups of local citizens in the old neighbourhood, including minorities. Interviewers asked people about something they like, dislike, or prefer to change in their living area.

This collected data was complemented by photos taken by each participant from the visited place to share and discuss with others. Local city guides assisted the visiting groups in making a deep diagnosis of the natural aspects of the neighbourhood.

After collecting all feedback from the local citizens in addition to the students, the participatory discussions about the neighbourhood continued by sticking some post-it papers on the map, to discover and prioritize the essential needs by local people. Then participants started the process of Co-Selection and Co-Creation of Healthy Corridors in the neighbourhood for one more day, by taking URBINAT NBS catalogues in use.

Finally, the workshop participants could design the initial concept of NBS and 2 proposals for a Healthy Corridor in Old Khorramabad neighbourhood, with focus on strengthening social and solidarity economy and social cohesion.

This workshop was a crucial step in understanding the project and further activities of the co-diagnostic phase in Khorramabad. It had a very favourable impact locally, injecting a spirit of inclusion and inspiring participation among citizens and stakeholders. The creative format allowed for different groups to take stock of the issues confronting the urban environment, as well as reflect what could be achieved by having actors come together around the implementation of NBS and a healthy corridor.

These exercises have already proven constructive and of practical importance for the urban planning process in Khorramabad, and by extension from there, more broadly in Iran. For the next stage, it is of critical importance with concrete follow-up and demonstration of real results.

7.4.1 The first stage of the Local Diagnostic

In Stage 1 of the Local Diagnostic, the follower cities assembled and organized an exhaustive data set useful for the project URBINAT. The Local Diagnostic designed by the Follower

Cities is the model used by the Follower, so they have implemented and performed their own Local Diagnostic using the experience of the project partners.

- What do you like to keep in the neighbourhood?

Preserve historical and religious sites, including:

- 1- Falak al-Aflak castle with archeological and anthropological museums
- 2- Museum of Traditional Arts
- 3- Gap bath
- 4- Tomb of Zayd Ibn Ali and Baba Tahir

- 5- Darb Dalakan neighbourhood
- 6- Three sic bath
- 7- Small square
- 8- Large square
- 9- Old caravanserais of Bajgiran region
- 10- The historical house of Ghazi or Akhund Abu
- 11- Corridor of Boroujerdi Bazaar
- 12- Crossing Naseri creek
- 13- Crossing of Whirlpool creek
- 14- Parks and green spaces
- 15- Old street of Posht Bazaar neighbourhood
- 16- Keeping people with their personal interests (especially people who are in the Gelsefid area and have a lot of belonging to the neighbourhood)
- 17- Widening of passages did not happen

Areas in need of regeneration:

- 1- Above Posht Bazaar neighbourhood
- 2- Reconstruction of Ardeshir Karami area
- 3- Improvement of Gelsefid region - Regarding Gelsefid region, it is a very notorious region in terms of demographic and cultural context.
- 4- Old stadium
- 5- Reconstruction and improvement of the old facade of residential buildings - Residential buildings, in addition to not having architectural value, do not have a beautiful facade and appearance.
- 6- Body beams and power cables.
- 7- The cables should be placed underground

- **Suggestions made in this section:**

1- Creating paved sidewalks

2- Creating spaces for the bike path

3- Creating a proper connection regarding the movement of the bicycle and the sidewalk

4- The possibility of moving small cars to move people in bazaar

5- Strengthening public transportation - between neighbourhoods

6- Creating a proper connection between natural elements, both in terms of green space and in terms of river water resources - Creating a connection between these two in the neighbourhood



Figure 7.22: Workshop in Khorramabad

Co-Creation

- What does the context prepare for social solidarity in neighbourhoods?

1- Crime in the neighbourhood: This has caused a crowd of people who are involved in social problems to gather there and the solidarity between them has created a texture and not an underground network which is very obvious.

2- People's sense of belonging and prejudice to their neighbourhood and city: They like their neighbourhood and want to be there as much as possible. (This feeling is very much in the Posht Bazaar neighbourhood).

3- The same income level: People have the same income level and are from a specific social class. But the important thing is the sense of belonging of people who do not migrate from these areas even in cases where they have a higher level of income.

4- Common customs and traditions: Posht Bazaar neighbourhood is the central neighbourhood of the city and has a special prominence from this perspective.

5- Family and clan relations: These relations are so strong that it has created a kind of social trust between families.

6- Religious beliefs: In mourning ceremonies (especially Ashura ceremonies in the Posht Bazaar neighbourhood), they become related to each other and come to this neighbourhood from other places as well.

7- Various ceremonies: including weddings, local games, local dances and various religious ceremonies.

8- Common public and public spaces: such as Gap Square, Gold Sellers Bazaar and Mirza Seyed Reza Caravanserai; These places are spaces for people to gather and interact together. Although these relationships have faded from the past, they still exist.

In connection with the topic raised in this stage, one of the groups suggested the formation of a "neighbourhood museum" and believed that by creating 5 stages, a sense of interaction and solidarity will be created between the habitants.



Figure 7.23: Khorramabad Workshop

The discussion of the neighbourhood museum is one of the new discussions on the subject of urban planning. The existing urban fabric is very rich and includes religious sites, traditional markets, antiquities, various occupations and valuable corridors. This texture should be considered as a set and should be in a way that this fabric is guided by the people. The museum has an entrance, an exit and a hierarchy. Now, this texture, which contains antiquities, religious sites, and water, must be turned into a museum that grows and guides itself, and can also meet the needs of the people who enter it. And this museum should have something to say for anyone of any age and specialty. The idea has 5 suggested steps as follows:

1- Justifying and explaining the exact vision of the project to the habitants: the output will create a public trust.

2. Self-sufficient neighbourhood of a teacher: A neighbourhood that grows on its own, gives itself identity, educates itself and is a kind of self-preserver.

3- Networking of businesses and original and traditional jobs of old neighbourhoods: This makes the jobs that have been lost or forgotten, as a result of this network, return to the neighbourhood.

4- Motivating habitants to form an ecotourism complex.

5- Cleaning neighbourhoods with recycling.

5.2 Design of the research plan for the second stage of the follower cities' local diagnostics

Engaging citizens and stakeholders in participatory activities to build on their visions and perceptions for a co-diagnostic

7.4.2 Design of the research plan for the second stage of the follower cities' local diagnostics

This section is dedicated to describe the set of participatory activities used to perform the co-diagnostic and feed the following phases of co-design and co-selection of NBS. All the activities were proposed and validated within the collective work in the workshops/community meetings.

7.4.2.1. Walkthrough

Walkthrough with the presence of volunteer groups from local residents in the old neighbourhoods of Khorramabad was done. The information extracted from this method is described in the table.



Figure 7.24: Walkthrough in Khorramabad

Things they like to keep	What better to change	suggestion
1- <u>Boroujerdi's</u> shop 2- <u>Jajim</u> and kilim weaving workshops 3- Gap square 4- The neighborhood is attractive because of the traditional market and the <u>old urban fabric</u> and this attracts tourists.	1- Improving the old urban fabric 2- The gold sellers' market has many tourists, but its texture is old and needs to be repaired and improved 3- Covering <u>Zeid Ibn Ali Bazaar</u>	1- Creating parks and green spaces 2- Establishment of health centers 3- Creating sports clubs 4- Increasing security, especially in the gold sellers' market 5- Creating a parking lot 6- Paving the streets 7- Placing garbage bins 8. Create beautiful views

Table 7.22: What do habitats like and what do they want to change?

In addition to the Walkthrough held in 2019 Another workshop was held in the Goelsfid neighbourhood for local recognition. The opinions of the participants in this method, who are often residents of the area under study, are largely similar and limited to the repetition of each other's opinions and thoughts. It is difficult for them to imagine the possibility of changing the area and it is limited to clearing the garbage. None of the participants, despite being adults, mentioned the

existence of historic houses, their importance and capacity as an asset. The level of frustration and indifference is significant.

Category	What usually happens here?	Total	Category	What do you like?	Total	Category	What you don't like?	Total
Security	Presence of addicts in ruins	3	Nature	Old trees	3	Physical aspect	Ruins	4
	passage of nonlocal addicts	1					Lack of visual beauty	1
	presence of strangers	2	Relationships	Good communication with neighbors	3	socio-Economic	Unemployment	2
	Theft	2		Old kinship relations	1		Existence of addicted people	2
	Conflict and dispute	2						

Table 7.23: What do habitats like and what do they don't like?

7.4.2.2. Cultural Mapping

Cultural mapping workshop was held in the facilitation office of the neighbourhood Posht Bazaar and GelSefid with the participation of 17 local stakeholders, topics such as assets, feelings, safe places and dreams about the neighbourhood were assessed and examined. Some of the outputs of this workshop are as follows.



Figure 7.25: Cultural Mapping workshop

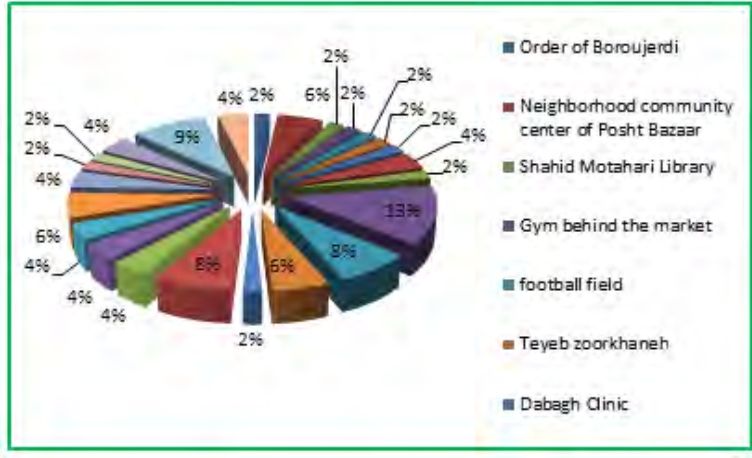
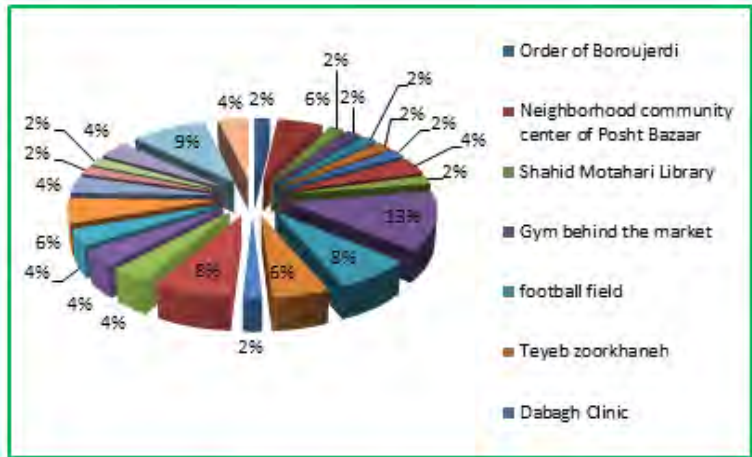


Figure 7.26: Participants' views on neighbourhood assets (Artificial assets)

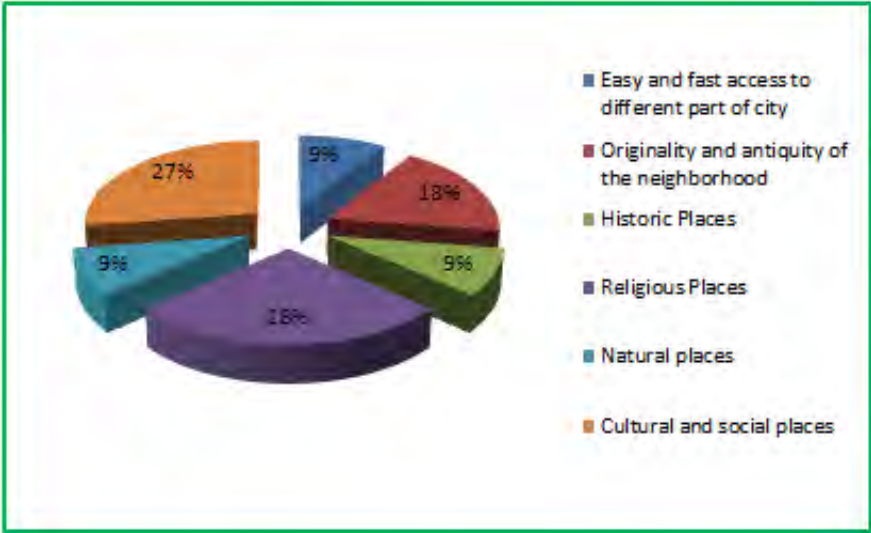


Figure 7.27: Positive physical emotions

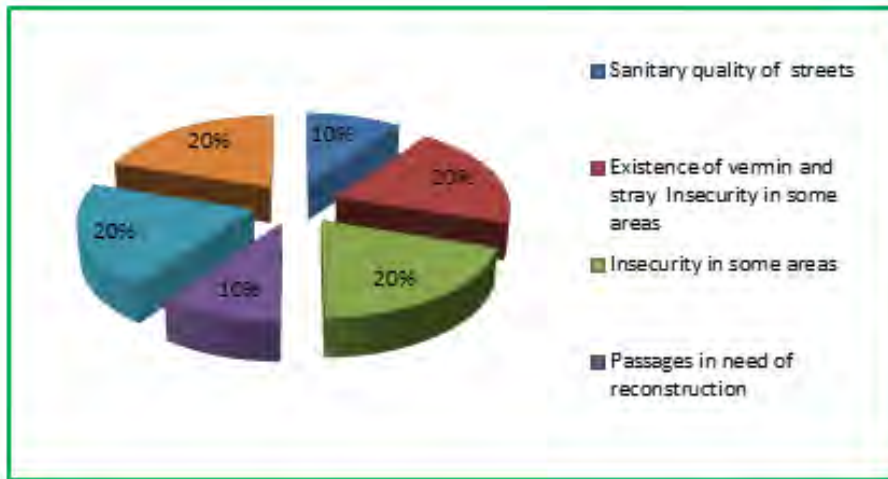


Figure 7.28: Negative physical emotions



Figure 7.29: Cultural Mapping

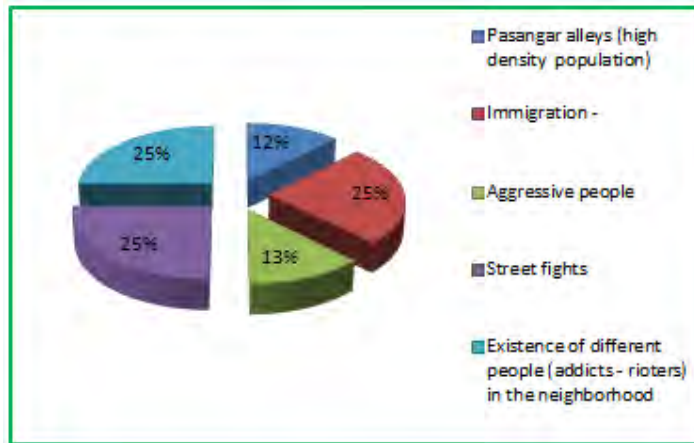


Figure 7.30: Insecure places (human)

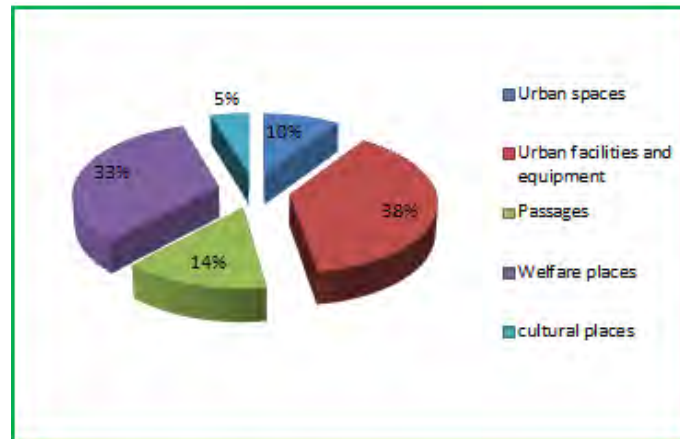


Figure 7.31: Dreams (physical artifact)

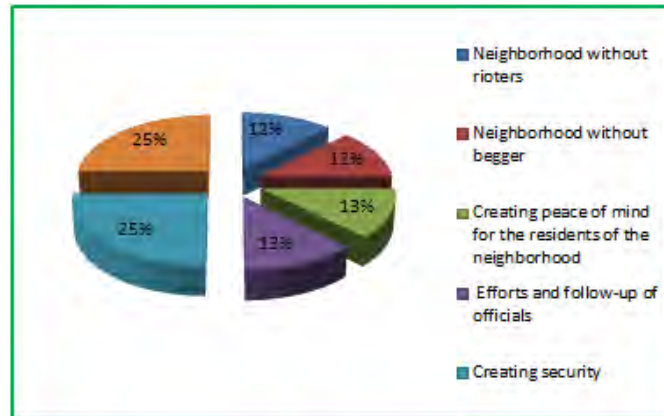


Figure 7.32: Dreams (human)

7.4.2.3. Photovoice

Photovoice was performed with the participation of students in two schools



Figure 7.33: Photovoice workshop

Items which stay	Items to be destroyed	Items to be added
1- Mosques 2- Waterfall of the Green square	closing cigarette stalls	1-Hospital, clinic and pharmacy 2- Cultural and artistic centers and libraries 3- Restaurant and coffee shop 4- Cinema 5- Suitable parks and green spaces 6- Amusement park 7- Game club and game net 8- Stadium, sports fields and swimming pool 9- Hotel 10- Trash cans 11- New buildings 12- Asphaltting the streets and roads 13- <u>Telecabin</u>

Table 7.24: Photovoice

The students also mentioned the following problems:

- 1- A park has been built in the neighbourhood after several years, which has also been destroyed.
- 2- Lack of public health services
- 3- They do not have a stadium, swimming pool or zoo near their place
- 4- The existing gym does not have a suitable building and location
5. Vehicles and cars are old and there is a shortage of public vehicles

6- Buildings have old and worn texture that need to be renovated

7- The width of the alleys is small

8- Houses that are adjacent to the mountain are at risk of falling

In addition to the Photovoice workshop held in 2019 Another workshop was held in the Gelsfid neighbourhood for local recognition and diagnosis through photovoice. The Photovoice method was also used to identify residents' perceptions of strengths and weaknesses in the images of specific local points (places and spaces that were less considered in the statements of residents and with the help of other methods)

	Social and economic	environmental health	Artificial elements of the environment	Natural elements of the environment
They Like				Beautiful view from inside to outside the neighborhood (3 people)
Want to change	Sale and consumption of drugs in the neighborhood (6 people)	Gathering of stray dogs (unsafe place for residents) (4 people)	Dilapidated and abandoned houses (frequency 3 people)	
		Existence of snakes and vermin (2 people)	Ruined lands (3 people)	
	Suffering and lack of progress of residents	Inadequate environmental health (3 people)	Creating safety on sloping roads (2 people)	
		Existence of waste at the site level (2 people)	Non-car routes (2 people)	
Want to keep				Local trees
Doable	Arrest of addicts at the local level	Adequate trash supply	Construction of stairs for side passages of GelSefid neighborhood	Create parks and green spaces

Table 7.25: What do students like and what do they want to change?

7.4.2.4. Focus groups

A problem-solving meeting on the issues and problems of GelSefid and Bajgiran neighbourhoods was held in the presence of 18 local active and influential residents and individuals in February 2020 in GelSefid and Posht Bazaar Facilitation and Local Development office. In this meeting, people from different age and gender groups were selected to represent the target community.

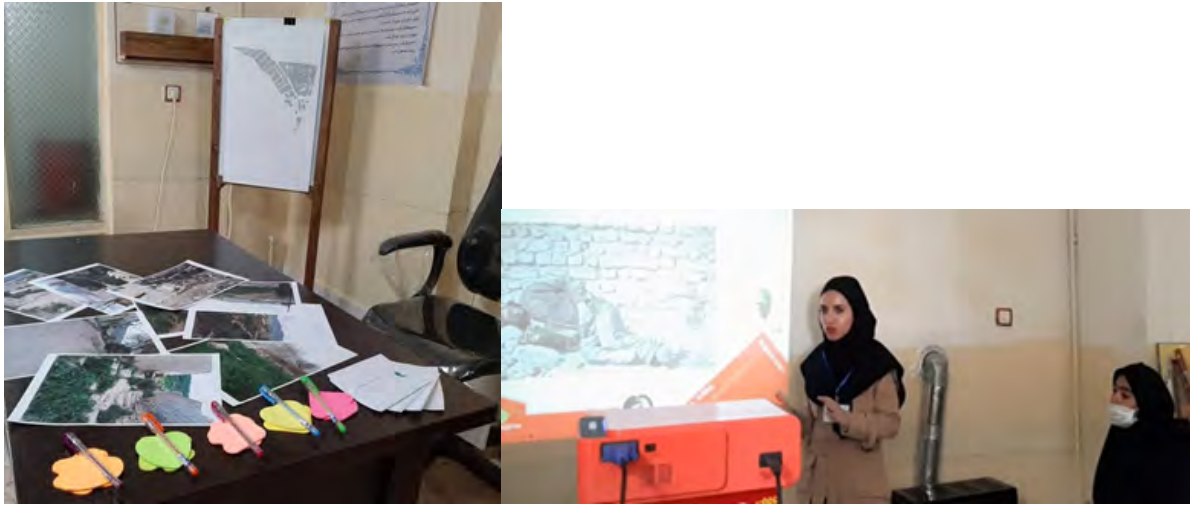


Figure 7.34: Focus group

In this session, with the aim of introducing issues and creating sensitivity for the participants, the results of the first stage of local cognition were presented to the residents with the help of a visual demonstration with a storytelling of local issues (output of the first stage of local diagnostic). Then, the people of the neighbourhoods participated in the next steps of the process and the implementation of mapping and photo voice techniques, feeling satisfied with the joint cooperation. And through each of these methods, a deeper understanding of their perceptions, wants, and needs was gained. At the end, the participants talked about the most important issues of the neighbourhood and presented their opinions (after observing and receiving expert studies in the first stage of local diagnostic).



Figure 7.35: Focus group

Issues and Challenges (Mapping and Focus group)

· What they do not like (The issues)

- 1- A large number of ruined and abandoned houses in the neighbourhood (adjacent to Baqiyatallah Mosque): (Frequency 6 people)
- 2- Presence of young addicts in the neighbourhoods (door of Baqiyatallah Mosque): (Frequency 5 people)
- 3- Presence of stray and dangerous dogs in the neighbourhood: (frequency 4 people)
- 4- Lack of trash in all of the neighbourhoods :(Frequency 4 people)
- 5- Instability and deterioration of houses: (frequency 3 people)
- 6- Asphalt problem of neighbourhood alleys: (Frequency 2)
- 7- Lack of green space and games for children :(Frequency: 2)
- 8- Lack of law enforcement kiosks for neighbourhood security (frequency: 2)
- 9- Lack of pharmacy: (Frequency 2)
- 10- Lack of ATM: (2)
- 11- Sale of drugs by teenagers: (1)
- 12- Interfering in the work of others: (1)
- 13- Robbery at night (1)
- 14- Lack of sports facilities and pools for women ((1)
- 15- Lack of medical centres (1)
- 16- Bad name of the neighbourhood (they come and use drugs from somewhere else) with the name of GelSefid neighbourhood (1)

· What they like (Mapping)

- 1- Neighborhood Facilitation Office
- 2- Neighborhood Cultural Center
- 3-Neighborhood Mosque

- 4- Neighborhood resistance base
- 5- Quiet and good neighbors
- 6- High number of neighbourhood athletes
- 7- The spirit of participation
- 8- Neighborhood gym
- 9- solidarity among the residents
- 10- Simplicity and calmness of the people of the neighbourhood



Figure 7.36: PoshtBazar neighborhood's Focus group

7.4.2.5. Behavioural mapping

Behavioural mapping was done in the Posht Bazaar neighbourhood during religious ceremonies in the month of Muharram.

People activities count +genders / Age	Place	Date	Time		Names			weather	
			Hour	Minutes				Temperature	Wind
	SeSic	18 Aug 2021	8-9 in the morning		Reza Turk Zaban - Amir Hossein Turk Zaban			41 ° C	
Category <small>activity movement</small>	gender	Age 0-14	15-24	25-64	Above 65	Ethnicity / Neighborhood	Total	Explanation	
Drinking water	Female			2		All the natives of the neighborhood	2	Non-natives are people who have passed through this place and therefore have used the drinking water of this area.	
	Male	1		9	2	Only two non-natives	13		
Water withdrawal by merchants	Female								
	Male			4		All the natives of the neighborhood	4		
Commuting in and out of range	Female							Two people were moving inside the range and the rest were moving outside the range	
	Male		۲	6	1	All the natives of the neighborhood	9		

People activities count +genders / Age	Place	Date	Time		Names			weather	
			Hour	Minutes				Temperature	Wind
	SeSic	18 Aug 2021	Noon 13-14		Mari Zare-Reza Turk Zaban - Amir Hossein Turk Zaban			43 ° C	
Category <small>activity movement</small>	gender	Age 0-14	15-24	25-64	Above 65	Ethnicity / Neighborhood	Total	Explanation	
Drinking water	Female	2	2	9		All women were non-native	13		
	Male	4	5	۲۴	2	26 non-natives	35		
Visiting the exhibition of <u>Moharram</u>	Female	3	3	۱۶	1	8 non-natives	23	Natives and non-Natives mean that they came from different parts of the city to visit this place and for this purpose	
	Male	3	11	20		15 non-natives	34		
								they were present in other activities.	
Travel in and out Of range	Female		4	12	1	15 natives	17	12 people enter and the rest move out of range	
	Male		3	21	6	24 natives	30	18 people entered and the rest were out of range	
Spread of oblation (Rose water)	Female								
	Male			۴		All people were non-natives	4		
Photography	Female		1	6		All people were non-natives	7		
	Male		7	8		4 natives	15		
Chatting	Female		1	2		All people were non-natives			
	Male		2	2		1 natives			

Table 7.26: Behavioural mapping

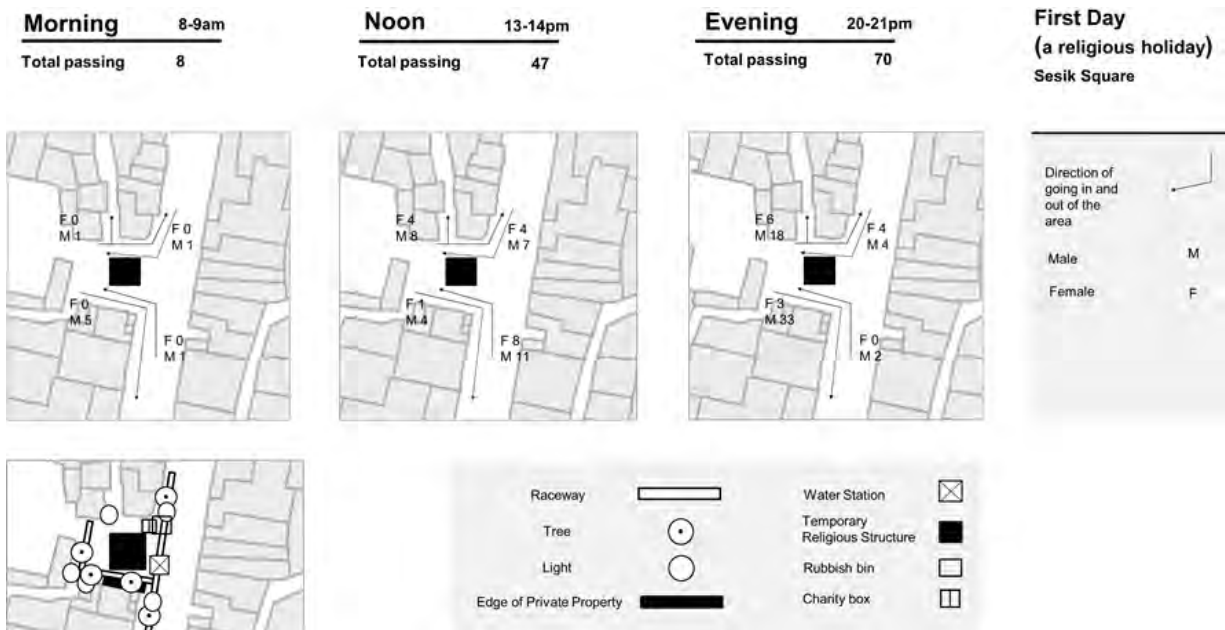
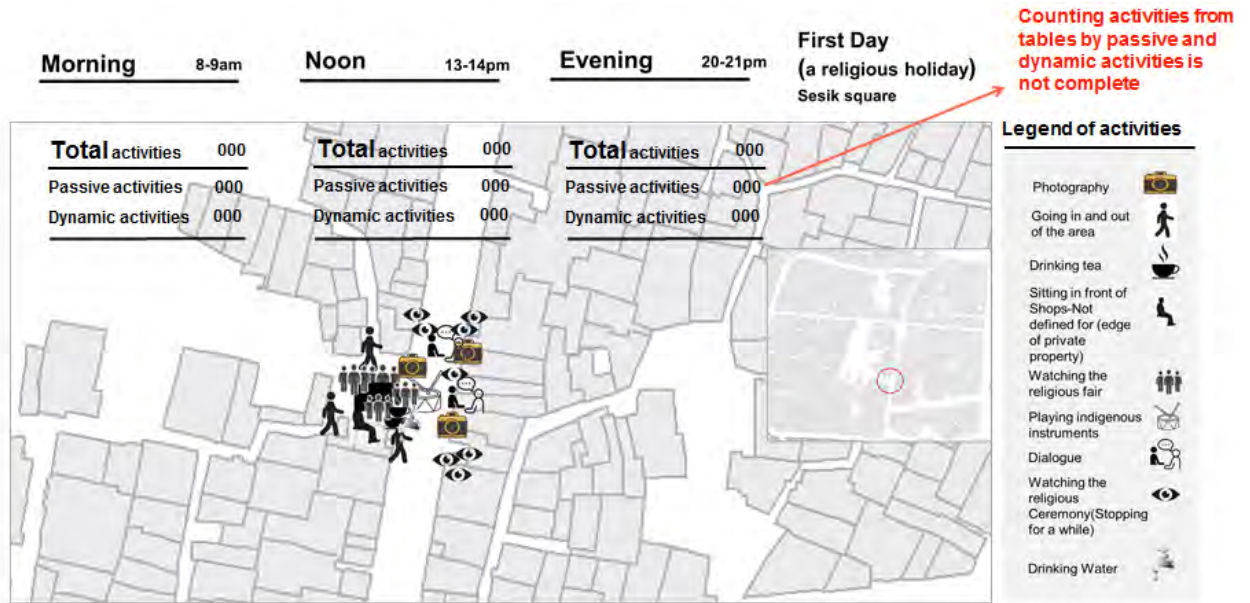


Figure 7. 37: Behavioural mapping

7.4.2.6. Face-to-face interviews

In this interview, 400 people were interviewed to find out what the residents think about their neighbourhood.

Distribution of respondents Gender	Number	Percentage
Male	187	47.2
Female	209	52.8
Total	396	100

Table 7.27: Face-to-Face interview

The three main problems of the neighbourhood according to the respondents are:

1. Inadequate urban space such as (inadequate asphalt, lack of proper lighting of roads and alleys, not having enough garbage bins in the neighbourhood, etc. with 46.6%, is the first problem of the neighbourhood from the respondents' opinion.
2. Unemployment and youth unemployment with 30.5% is the second problem from the respondent's opinion.
3. Lack of facilities and medical-educational services in the neighbourhood, including clinics, hospitals, specialist doctors, cultural centres, etc. with 22.9% is the third problem in the neighbourhood according to respondents' opinion.

The three solutions suggested by the respondents regarding the most important problems of the neighbourhood are:

1. Consideration of government and service institutions such as (municipality, police, etc.) to the neighbourhood with 55.2% is the first solution proposed by the respondents.
2. Creating a suitable environment for the employment of the youth of the neighbourhood with 25.5% is the second solution proposed by the respondents.
3. Creating a suitable sports-recreational space for the youth of the neighbourhood with 19.3%, is the third solution proposed by the respondents.



Figure 7. 38: Face-to-Face interview

7.4.2.7. Neighbourhood Survey

Assessing health and wellbeing of the local population

The surveying method considered in this research is a multi-stage random sampling method. For this purpose, first, by using cluster sampling, we divided the neighbourhood into several clusters using a basic map based on statistical blocks. Then, using stratified sampling according to age and gender characteristics, we select the intended samples. Therefore, our sampling method is a combination of cluster and stratified samples. According to the general population and housing census data of 2016, which is provided as a shapefile through the Management and Planning Organization of Lorestan Province, the total number of the population of the operational area is 10889. As a result, by doing face calculations, 8648 people have gathered in the PoshtBazar neighbourhood and at the DarbeDalakan for more than 15 years. For a number of examples, Cochran's formula has been used. Due to its social nature, the accuracy rate is 95% and the error rate is 5%. It is also unacceptable for the number of questionnaire responses. The number of samples obtained through the form has been added, as a result, the number of questionnaires 400 pieces are considered. Some tables of this method are given in the first stage.



Figure 7. 39: Neighbourhood Survey

7.4.2.7. Territorial Mapping

The cooperation of local residents has been used to gather information to prepare some territorial maps that require residents' information.

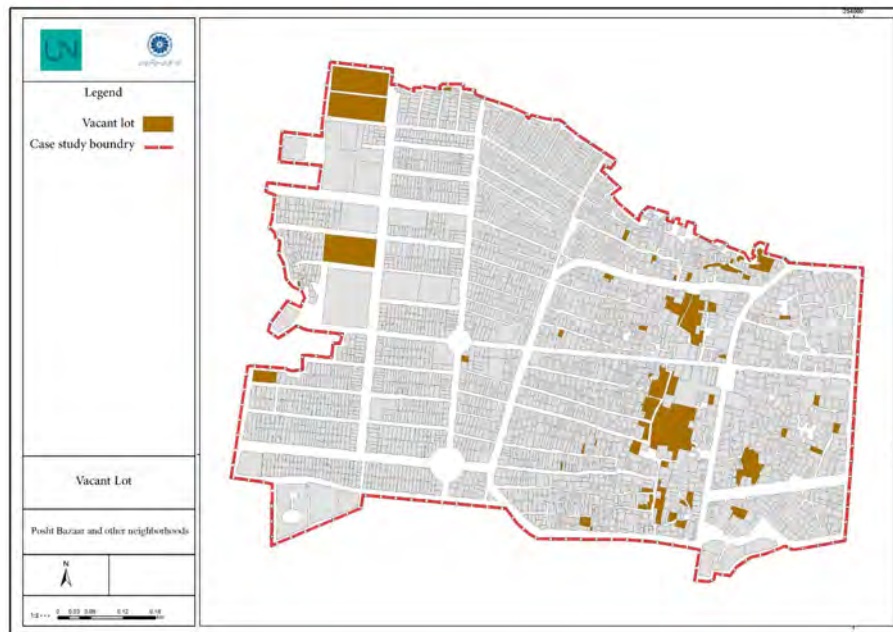


Figure 7. 40: Territorial mapping

7.5. Baseline for the development of the healthy corridor

According to the data from the local diagnostic, especially the questionnaire. The main purpose is to establish communication between neighbourhoods for further services.

Poor economy and lack of cultural infrastructure are some of the things that are often mentioned in the workshops.

A Healthy corridor that focuses more on economic and social issues is considered by the URBiNAT team of Iran.

7.6. Conclusion

By doing local diagnostics through peripheral observatory with residents and participatory workshops, it has been concluded that our study area in the URBiNAT project as the deprived neighbourhoods need more social and economic intervention.

The most important challenges of the studied areas were identified through face-to-face interviews and filling questionnaires.

URBiNAT team of Iran, while paying attention to co-design of a healthy corridor, by small participatory implementation in the form of NBS will co-create development aligned with the URBiNAT objectives.

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