

## URBREATH [101139711]

Systemic Integration of Transformative Technical and Nature-based Solutions to Improve Climate Neutrality of European Cities and Regions and tackle Climate Change: the URBreath Approach



### [D6.1 NBS Deployment, Monitoring and Validation Plan & Report]

<b>Project Reference No</b>	URBREATH – 101139711
<b>Deliverable</b>	D6.1 NBS deployment, monitoring and validation plan & report - V1
<b>Work package</b>	WP6: Urban Greening and Renaturing Access
<b>Type</b>	R - Document, report
<b>Dissemination Level</b>	PU - Public (fully open)
<b>Date</b>	30/06/2025
<b>Status</b>	FINAL
<b>Editor(s)</b>	Lill Sarv, Tallinn University of Technology Luisa Maria Männilaan, Tallinn University of Technology Katariina Mustasaar, Tallinn University of Technology
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<b>Document description</b>	The deliverable describes the framework developed for monitoring and implementing the URBREATH demo-sites. It also reports on the plan for monitoring, deployment, and validation of the selected NBS in FR cities. This deliverable is linked to T6.1 and T6.4. In addition, this document provides overview of changes in the pilot sites compared with the original proposal and lists the reasoning behind the changes. It outlines the current planned timelines for the demo sites construction and how it fits with the testing of URBREATH Toolbox.

## Document Revision History

Version	Date	Modifications Introduced	
		Modification Reason	Modified by
V0.1	02/06/2025	Deliverable draft	TAL
V1.0	13/06/2025	Submitted for peer review	TAL
V1.1	23/06/2025	Peer review	LC, POLIMI
V2.0	27/06/2025	Submitted to Project Coordinator for quality check	TAL
V2.1	30/06/2025	Final version ready for Submission	LC

## Disclaimer

The URBREATH project is co-funded by the European Union under grant agreement ID 101139711. The information and views set out in this document are those of the URBREATH Consortium only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

## Executive Summary

The main objective of this deliverable is to provide a comprehensive overview of:

1. The developed framework for monitoring the advancement of URBREATH Front Runner Cities (FRCs) pilot sites' implementation plans and the construction process. The framework will be directly upscaled and adapted in T7.2 for the use of the Follower Cities. It will also provide input for T7.5 (Road mapping for urban transformation and climate neutral cities).
2. Methodology used for framework development and input collection from the FRCs about pilot sites' implementation process.
3. Apply the developed framework to understand the timelines of FRC pilot sites in the context of URBREATH overall timeline and URBREATH Toolbox testing. The deliverable gives an overview of all the FRC initial plans for the pilot-sites, occurred changes and reasoning behind the changes as well as if and how the changes impact the overall outcomes of URBREATH project.
4. The potential risks and their mitigation connected with potential changes and delays in demo site construction as well as their impact on testing the URBREATH Toolbox in real-life context.

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## List of Terms and Abbreviations

Abbreviation	Definition
FRC	Frontrunner Cities
FLC	Follower Cities
NBS	Nature-Based Solution
RIBA	Royal Institute of British Architects
KPI	Key Performance Indicator
(L)DT	(Local) Digital Twins
(L)LL	(Local) Living Labs

# 1 Introduction

## 1.1 Purpose and Scope

This deliverable aims to outline the structure that is created to monitor the planning process of designing, constructing, and maintaining the selected Nature-Based Solution (NBS) of four FRC pilot sites.

The overarching objective is twofold:

1. To ensure the effective, timely, and context-sensitive deployment of NBS interventions and supporting their long-term viability; and
2. To align the practical implementation plans of FRCs with the broader strategic and technical work carried out by the URBREATH consortium across various work packages.

By bridging on-the-ground action with URBREATH's theoretical and methodological framework (ref. Deliverable D2.1 - Methodological framework for urban greening Living Labs and hybrid NBS interventions and adaptive pathways – V1), this deliverable aims to bring these two spheres of work into closer alignment. This is essential not only to ensure the application of the tools and frameworks developed within the project but also to identify and address potential risks to the validation process—particularly those arising from misalignment between implementation and evaluation timelines.

## 1.2 Approach for Work Package and Relation to other Work Packages and Deliverables

The deliverable focuses on the planning of NBS implementation, with tailored Plans of Work developed collaboratively with the FRCs. These plans are grounded in insights and data from previous project deliverables and tasks, including:

- **D2.4 – Use case scenarios and baselines**, which informed the definition of the design brief through context description (Cities' baselines) as well as aims and barriers and prioritised use case scenarios of the pilot sites;
- **T5.3 – Local Living Labs**, which provided essential contextual understanding through its workshops, which laid down the initial timeframe for all the cities;
- **T5.6 – Performance evaluation and impact assessment**, which further supports goal setting through the definition of Key Performance Indicators (KPIs).

For more city-specific insights, a separate one-on-one online meeting was held with each of the FRCs. These discussions provided a deeper understanding of their state-of-the-art procedures currently in use and enabled a basis for a more detailed timeline of development for the planned scope of work.

To provide an overview of the tasks being developed by the URBREATH consortium, a workshop involving all work package and task leaders was held during the General Assembly in Cluj-Napoca on 22 May 2025, with the aim of developing a more detailed timeframe for the URBREATH project. This included defining specific outcomes to facilitate monitoring and ensure alignment with the stages and timelines of the FRCs.

The validation of the Plan of Works took place at the General Assembly in Cluj-Napoca on 22 May 2025, and in an individual follow-up online meeting with each FRC.

This deliverable will provide a direct starting point for T6.2 – Customisation of the Institutional and Technical NBS Framework, and T6.3 – Procurement and City Preparation for Intervention.

The scaling of this approach will take place in T7.2 – FLC Project Plan and Development, T7.3 – Development of Urban Greening Investment Plans for FRC, T7.5 – Road mapping for Urban Transformation and Climate Neutral Cities.

### 1.3 Methodology

The base for a clear implementation and deployment plan, the UK-based RIBA Plan of Works<sup>1</sup> is used as a guide for mapping different stages of the design process. RIBA provides eight design stages that outline the outcome, core tasks and information exchange of each stage, regardless of the procurement structure of the project. It also highlights nine project strategies to help focus on different core aspects of the project and to involve different experts to enable its successful delivery.

Although RIBA Plan of Works provides a good starting point, some adjustments have been made to the framework, that contextualizes it to EU context, adjusts it to landscape architecture, especially focusing on NBS and finetunes it to the URBREATH project:

1. The number of stages has been reduced to five – brief setting, concept design, preliminary design, detailed design, construction, handover and monitoring.
2. The number of project strategies has been reduced to four – cost strategy, planning strategy, inclusive design strategy, and plan of use strategy.
3. URBREATH project timeline, along with the task outputs, has been correlated to the adjusted Plan of Works.

Hereinafter, the deliverable outlines the core tasks of each implementation stage. In several cities, they are not clearly separated, and the core tasks differ either due to the different scales of the project or different legislative contexts of each city, that define optional and mandatory steps for the design process. However, to enable comparison across all cases, the approach of this deliverable seeks to establish a general framework that can be later adapted to each city's specific context. The framework will be further refined in the following deliverables.

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<sup>1</sup> RIBA (2020) *RIBA Plan of Works Overview*, Royal Institute of British Architects

**Table 1: Stage 0 – Brief Setting**

Project Brief approved by the city and the consortium and confirmed that it can be accommodated on the site.		
<b>Core Tasks</b>	<b>Information Exchange</b>	<b>Related URBREATH Tasks</b>
<ul style="list-style-type: none"> <li>• Prepare Project Brief (inc. defining KPIs)</li> <li>• Spatial Requirements</li> <li>• Undertake Feasibility Studies</li> <li>• Agree Project Budget</li> <li>• Source Site Information (inc. Site Surveys)</li> <li>• Prepare Project Programme</li> <li>• Prepare Project Execution Plan</li> <li>• Appoint design team</li> <li>• Define project stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>• Project Brief (D2.4)</li> <li>• Feasibility Studies</li> <li>• Site information</li> <li>• Project programme</li> <li>• Procurement Strategy</li> <li>• Project budget</li> <li>• Project risks</li> </ul>	<p>T2.2 T2.4 T5.3</p>

**Table 2: Stage 1 – Concept Design**

Defines the Architectural Concept, aligning it with the Project Brief, budget, and regulations. Design reviews refine the concept, ensuring it meets spatial, client, and regulatory needs.		
<b>Core Tasks</b>	<b>Information Exchange</b>	<b>Related URBREATH Tasks</b>
<ul style="list-style-type: none"> <li>• Prepare Architectural Concept (inc. Strategic Engineering requirements and aligned to Cost Plan, Project Strategies and Outline Specification)</li> <li>• Agree Project Brief Derogations</li> <li>• Undertake Design Reviews with Municipality and Project Stakeholders</li> <li>• Prepare stage Design Programme</li> <li>• Agree route to Building Regulations compliance</li> </ul>	<ul style="list-style-type: none"> <li>• Updated project brief</li> <li>• Project strategies (cost plan strategy, inclusive design strategy, planning strategy, Plan for use strategy)</li> <li>• Cost plan</li> <li>• Outlined specifications</li> </ul>	T4.1, T4.2, T4.3, T5.3, T5.6
<b>Project Strategies</b>		
Cost Strategy	Prepare cost estimates to test feasibility, highlight cost-related risks, and account for market changes. Agree on the project budget and appoint necessary cost consultants.	
Planning Strategy	Conduct site appraisal and review planning advice to identify project risks. Use feasibility studies to test the project brief against site constraints. Confirm necessary consents and planning formats and develop a planning brief. Appoint relevant planning consultants.	
Plan of Use Strategy	Incorporate feedback and set measurable environmental targets in the project brief. Include post-occupancy evaluation, maintenance, and stakeholder engagement plans.	
Inclusive Design Strategy	Identify inclusive design needs from stakeholders, site audits, standards, and legislation, and incorporate them into the Project Brief. Source relevant site information and verify inclusive design feasibility within the project budget. Appoint specialist inclusive design consultants if required.	

**Table 3: Stage 2 – Preliminary Design**

<p>Refines the Architectural Concept through detailed design and engineering, ensuring spatial coordination and alignment with the cost plan. The design is updated, project strategies refined, and a building regulations review conducted. After client approval, a planning application is submitted.</p>		
<b>Core Tasks</b>	<b>Information Exchange</b>	<b>Related URBREATH Tasks</b>
<ul style="list-style-type: none"> <li>Undertake Design Studies, Engineering Analysis and Cost Exercises to test Architectural Concept resulting in spatially coordinated design aligned to updated Cost Plan, Project Strategies and Outline Specification</li> <li>Prepare stage Design Programme</li> <li>Review design against Building Regulations</li> <li>Prepare and submit Planning Application</li> </ul>	<ul style="list-style-type: none"> <li>Updated project strategies</li> <li>Updated cost plan</li> <li>Updated outlined specifications</li> <li>Planning application</li> </ul>	T4.1, T4.2, T5.3
<b>Project Strategies</b>		
Cost Strategy	Conduct cost exercises to test design details, strategies, and specifications with input from specialists as needed, ensuring affordability and compliance. Iteratively update the cost plan as design develops, improving cost certainty and balancing increases with reduced contingencies.	
Planning Strategy	Review building regulations, assess local impacts with consultants, and integrate feedback into the design. Prepare planning documents, confirm conditions and contributions, and submit the planning application once the design is ready.	
Plan of Use Strategy	Plan of Use Strategy – Review building regulations, assess impacts with specialists, integrate feedback, and prepare planning documents. Confirm conditions and contributions, then submit the planning application when the design is ready.	
Inclusive Design Strategy	Inclusive Design Strategy – Conduct design studies and reviews with input from stakeholders to test building performance. Integrate requirements into the design, embed post-occupancy evaluation and aftercare in the procurement strategy, and update performance risk records for Detail Design Stage.	

**Table 4: Stage 3 – Detailed Design**

<p>Prepares all construction and manufacturing information. Compliance with building regulations is ensured, costs are controlled, and the building contract is signed. Most design strategies are embedded in the final documentation.</p>		
<b>Core Tasks</b>	<b>Information Exchange</b>	<b>Related URBREATH Tasks</b>
<ul style="list-style-type: none"> <li>• Develop architectural and engineering technical design</li> <li>• Prepare and coordinate Building Systems information with specialist subcontractor information</li> <li>• Prepare stage Design Programme</li> <li>• Prepare Construction Phase Plan</li> <li>• Appoint Contractor</li> </ul>	<ul style="list-style-type: none"> <li>• Construction information</li> <li>• Final specifications</li> <li>• Residual project strategies</li> <li>• Building regulation application</li> </ul>	T2.2, T4.1, T4.2, T5.3
<b>Project Strategies</b>		
Cost Strategy	Update the cost plan with detailed analysis and pricing to form the pre-tender estimate. Review tenders and cost-saving proposals against the plan, quality goals, and regulations. Track cost changes during tendering and identify risks or areas needing provisional sums.	
Planning Strategy	Prepare supplementary design details, submit applications to discharge planning conditions, and address any amendments. Include planning conditions in tender info and review returns accordingly.	
Plan of Use Strategy	Review and manage performance risks with the design team, include plan for use and aftercare info in tender documents, and assess tender returns against risks and project outcomes. Coordinate specifications with performance risk records.	
Inclusive Design Strategy	Finalise technical design and specifications for an inclusive building, coordinating with the team and subcontractors. Include inclusive design in tender documents, review returns, and ensure compliance to local guidelines and building regulations.	

**Table 5: Stage 4 – Construction**

<p>Involves construction, managing quality and logistics, and preparing handover at practical completion, including final inspections.</p>		
<b>Core Tasks</b>	<b>Information Exchange</b>	<b>Related URBREATH Tasks</b>
<ul style="list-style-type: none"> <li>Finalise Site Logistics</li> <li>Manufacture Building Systems and construct the design</li> <li>Monitor progress against Construction Programme</li> <li>Supervise Construction</li> <li>Resolve Site Queries as required</li> <li>Undertake Commissioning of building</li> <li>Prepare Building Manual</li> <li>Carry out Construction Phase Plan</li> <li>Comply with Planning Conditions related to construction</li> </ul>	<ul style="list-style-type: none"> <li>Practical Completion</li> <li>Defects List</li> <li>Asset Information</li> </ul>	T2.2, T4.3, T5.3, T6.4
<b>Project Strategies</b>		
Cost Strategy	Monitor and report contract cost variations based on expected out-turn costs, agreed changes, and contingency release. Issue interim payment valuations as per the contract and manage costs for project items outside the main contract, such as furniture and equipment.	
Planning Strategy	Submit required information for planning conditions before work starts, ensure compliance during construction, and submit applications to discharge remaining conditions, providing consent notices to the client.	
Plan of Use Strategy	Manufacture, construct, and commission the building for optimal performance. Ensure monitoring equipment meets preliminary design requirements, assess design changes, update performance risks, and plan a smooth handover.	
Inclusive Design Strategy	Manufacture, construct, and commission inclusive design measures, ensuring proper workmanship and quality inspections. Resolve site queries and prepare access information for end users.	

**Table 6: Stage 5 – Handover and Monitoring**

<p>Begins with handover to the client, defect resolution, and setting up aftercare. It includes training users and gathering feedback via post-occupancy evaluation. A project performance session helps capture lessons for future projects.</p>		
<b>Core Tasks</b>	<b>Information Exchange</b>	<b>Related URBREATH Tasks</b>
<ul style="list-style-type: none"> <li>• Hand over project in line with Plan for Use Strategy</li> <li>• Undertake review of Project Performance</li> <li>• Undertake seasonal Commissioning</li> <li>• Rectify defects</li> <li>• Implement Facilities Management and Asset Management</li> <li>• Undertake Post Occupancy Evaluation of building performance in use</li> <li>• Verify Project Outcomes including Sustainability Outcomes</li> <li>• Comply with Planning Conditions as required</li> </ul>	<ul style="list-style-type: none"> <li>• Feedback on Project</li> <li>• Performance</li> <li>• Final Certificate</li> <li>• Feedback from Post Occupancy Evaluation</li> </ul>	<p>T2.2, T4.1, T4.2, T4.3, T5.3, T5.5, T5.6, T6.4</p>
<b>Project Strategies</b>		
Cost Strategy	Initiate aftercare, provide training, and conduct seasonal commissioning. Address defects, review performance, and update health and safety info based on maintenance feedback.	
Planning Strategy	Hand over inclusive design information, review feedback, provide training, address defects, and assess building performance for all users.	
Plan of Use Strategy	Complete the transfer to facilities management with training. Review defects, monitor energy, gather feedback, calibrate the energy model, and fine-tune systems for Sustainability Outcomes	
Inclusive Design Strategy	Hand over according to the Plan for Use Strategy, review project performance, rectify defects, complete initial aftercare tasks, and implement facilities and asset management monitoring.	

## 2 Cities' Timelines

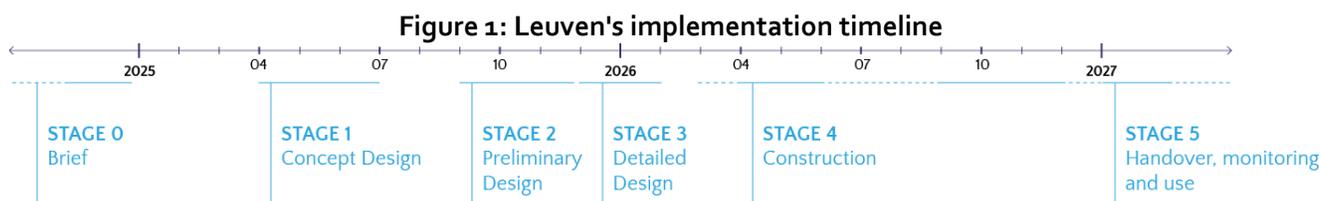
This chapter outlines the project timelines and implementation strategies developed in collaboration with each FRC separately. These timelines serve as guiding frameworks to support the cities in structuring their implementation processes, and, in the long run, aligning with other ongoing project activities and WPs. They provide a comparative overview of how each city progresses through different stages, helping to coordinate efforts across the consortium.

The initial timelines were developed through one-on-one meetings with each city and have since been adjusted based on feedback and evolving project dynamics. It is important to note that these timelines are indicative, not final; they will be refined as the project advances. This chapter primarily focuses on the period beginning in 2025, as the project brief had already been defined in an earlier stage.

Each city's implementation plan is further elaborated in the chapters *Project Design Process* and *Project Strategies*. In particular, *Stage 0 – Brief* presents the foundation of each city's approach, covering elements such as *Project Overview, Objectives, Potential Barriers, Use Case Scenarios, and Key Performance Indicators (KPIs)*. These components were validated during the discussions held during the individual online meetings (refer to Annex 4 for the slides outlining the Cities' Plan of Works, validated by each city prior to the submission of this deliverable) and the workshop with the FRCs. They also draw on the use case scenarios and baselines defined in Deliverable D2.4 (ref. Deliverable D2.4 - Use case scenarios and baselines), as well as the results of T5.1, which defined the FRCs baselines (ref. Deliverable D5.1 - Local baselines state and URBREATH revisited requirements and technical framework - V1).

Furthermore, defining the FRCs' timelines and strategies has relied on T5.3 (which outlined the characteristics of the co-created NBS scenario in each FRC). For more information on this, see D5.5 (ref. Deliverable D5.5 - Local Living Labs report - V1).

### 2.1 Leuven



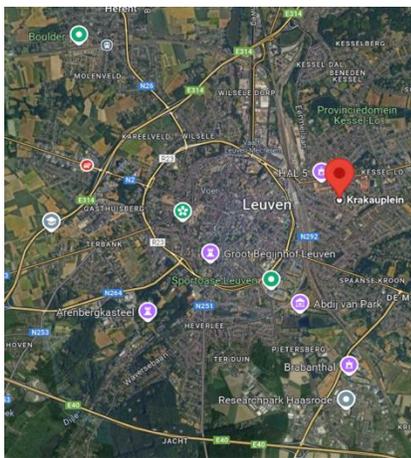
## 2.1.1 Project Design Process

### Stage 0 – Brief

January 2024 – March 2025

This stage focuses on defining the project's main objectives and identifying the implementation site. Although Pater Damiaan Square was initially proposed in the Description of Action, the site was changed to Krakau Square in May 2024 with the approval of the Project Officer. The city intends to use an additional site (Tarweschoof Square) as a replication location for its own learning initiative.

**Figure 2: Location of the Leuven pilot site**



**Figure 3: Leuven pilot site. Krakau Square in green and Tarweschoof Square in yellow**



(Credits: Google Maps, Leuven Team)

### Project Overview

Leuven aims to transform Krakau Square into a greener, climate-adaptive public space that addresses urban heat island effect, carbon emissions, and water resilience while enhancing biodiversity and improving the quality of life for residents. Currently dominated by motorised transport and impervious surfaces, the square will be transformed through a NBS to reduce traffic, increase green cover, and promote active mobility. The project aims to support biodiversity, improve environmental quality, and create a socially inclusive and attractive urban environment. The project will engage stakeholders through co-creation, using Living Labs and digital modelling to inform design decisions, while monitoring environmental impacts and social outcomes to ensure long-term resilience and equity.

### Objectives

The redevelopment of Krakau Square aims to reduce reliance on motorized transport by encouraging cycling and pedestrian movement. Environmental goals include expanding green and high-quality biotope areas, enhancing biodiversity through increased flora and fauna diversity, increasing

permeable surfaces and tree cover. Social objectives focus on increasing recreational access, fostering social interaction, and enhancing public well-being through inclusive design. A core ambition is to raise awareness of NBS and climate adaptation among citizens, while fostering their integration into local governance practices.

### **Potential Barriers**

The project may face resistance due to proposed land use changes and reduced parking capacity, which could affect community support. NBS maintenance may require additional labour and financial investment, straining municipal budgets. Political hesitation and limited experience with innovative tools, such as digital twins, may hinder implementation. Moreover, managing a co-creation process with diverse stakeholders carries the risk of conflicting interests, potentially delaying consensus and progress.

### **Use Case Scenarios**

The project will use stakeholder engagement tools, including living labs and digital twins, to co-design the transformation of Krakau Square. These tools will facilitate scenario development and decision-making that reflect community values. Post-implementation, environmental and social impacts will be monitored—such as flood and drought resilience, improved air quality, and increased use of the space by different user groups. The project will also assess how well the square contributes to social cohesion, physical activity, and public awareness of NBS.

### **Key Performance Indicators (KPIs)**

Environmental KPIs include increased biodiversity (flora, fauna, and tree cover). Climate resilience indicators will track increase in permeable surfaces. Social indicators focus on enhanced recreational access, user satisfaction, and the provision of inclusive spaces for physical activity and social interaction. Additional KPIs will measure public awareness of climate adaptation and the degree of NBS integration into municipal planning practices.

### ***Stage 1 – Concept Design***

April 2025 – June 2025

This stage began with an on-site co-creation LLL, organised by Leuven in April 2025, where the residents were informed about the renovation of the square, and involved in the NBS design (ref. Deliverable D5.5 - Local Living Labs report - V1. Subsequently, April and May were dedicated to developing layout design scenarios. The feedback session for the design scenarios, initially scheduled for June 2025, was cancelled due to force majeure circumstances affecting the design team's availability. However, the city has already hosted feedback sessions on accessibility, engaging community members including wheelchair users and individuals with visual impairments.

***Stage 2 – Preliminary Design***

September 2025 – November 2025

The community involvement workshop is currently scheduled for September but is under discussion. September and October will be spent preparing the preliminary design for approval by CBS (College van Burgemeester en Schepenen – the Leuven Municipal Executive). Feedback for preliminary design is expected to be gathered in November.

***Stage 3 – Detailed Design***

December 2025 – February 2026

In this stage, the final design will be revised and submitted for approval by CBS, with the approval expected by January 2026 at the latest. The final design will be publicly presented in spring 2026.

***Stage 4 – Construction***

March 2026 – December 2026

The construction stage will begin in March 2026 and is expected to be completed by the end of the year. This stage also includes planting seasons in spring and autumn 2026.

***Stage 5 – Handover and Monitoring***

From January 2027

The final year of the project will focus on monitoring the success of the NBS based on selected KPIs and on gathering community feedback on both the project outcomes and the implementation process.

**2.1.2 Project Strategies*****Cost Strategy***

Most of the financing for the NBS comes from the municipal budget, with the remaining being covered by EU funding. This funding is already secured; there is some budgetary flexibility, though any adjustments require administrative and political approval. Procurement is proceeding through a standard city framework for re-greening and de-sealing works with fixed-price contracts, allowing rapid implementation once the in-house design process is complete.

The procurement contract is already in place for the start. A new procurement framework will be launched in June 2025, with procurement actions scheduled for December 2025. This offers an opportunity to explore innovative procurement approaches, such as circular approaches and the involvement of social enterprises for replication sites or future projects. Continued discussion on this might happen in autumn 2025.

### *Planning Strategy*

Leuven's planning strategy emphasises responsiveness to local conditions. Interventions will connect adjacent areas shaped by existing plans and developments (such as the masterplan of a neighbouring site and recent developments in another neighbouring site), despite the site itself lacking specific constraints.

### *Plan of Use Strategy*

Leuven's plan of use strategy focuses on stakeholder engagement in shaping the project. Feedback from key stakeholders is gathered through Living Labs (ref. Deliverable D5.5 - Local Living Labs report - V1) and Digital Twin technology. The strategy includes mechanisms to monitor social justice and well-being over time. The environmental impacts and ecosystem services resulting from the square redesign will also be monitored. Responsibility for the maintenance of the project will be taken on by the municipality.

### *Inclusive Design Strategy*

Leuven's site, Krakau Square, is situated in one of the city's more socially vulnerable neighbourhood, marked by a high concentration of social housing, low-income households, and a significant number of refugees and single-person residents. The city's internal design team works closely with departments for citizen engagement, mobility and accessibility to integrate diverse perspectives into the design process. In addition, the team is exploring options for socially responsible procurement. Community groups including students, youth workers, and residents are actively involved in the design process to ensure the project responds to real needs.

### *Project Team*

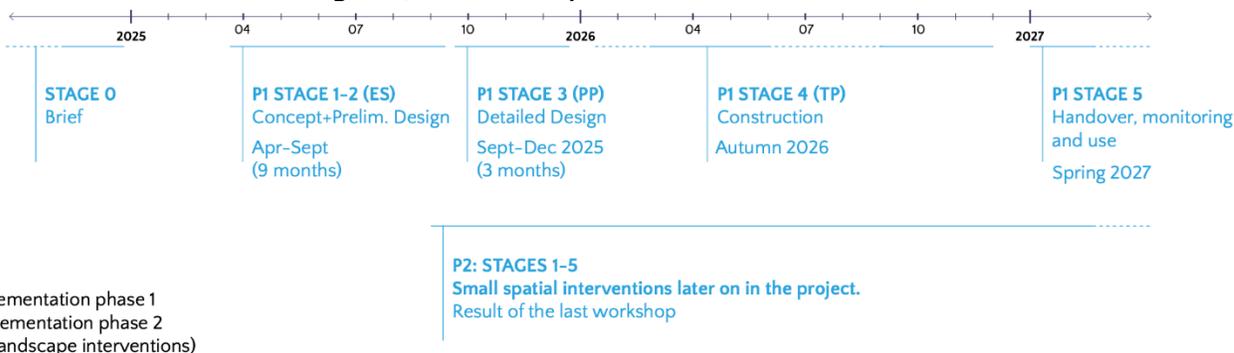
**Client Team** – Municipality (the City of Leuven, Department of Urban Design and Public Works).

**Design Team** – Internal design team of the city, consisting of landscape designers and engineers. The team is getting input from the departments of citizen engagement, mobility, accessibility, etc.

**Contractor Team** – Will be procured through public tendering process (to engage practices promoting material reuse and social inclusion) or the city will collaborate with its regular partners under an existing partnership agreement. Certain tasks like planting might be carried out by internal resources.

## 2.2 Tallinn

Figure 4: Tallinn's implementation timeline



### 2.2.1 Project Design Process

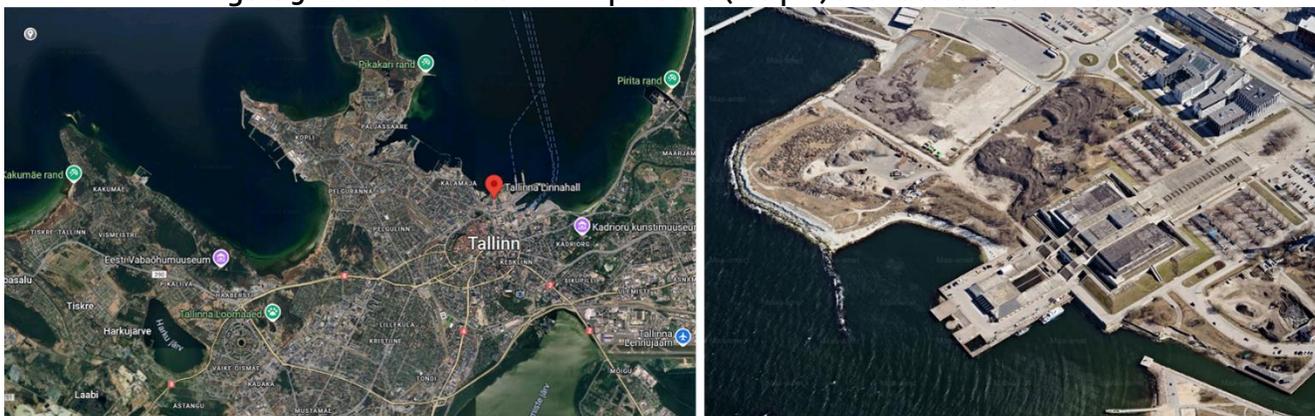
Implementation of the NBS will be carried out in two phases. The first phase focuses on developing the overall concept design of the area, including key elements such as pathways and technical solutions. The second phase begins in parallel, focusing on the implementation of smaller spatial interventions.

#### Stage 0 – Brief

January 2024 – March 2025

This stage focused on defining the main objectives of the project and defining the pilot site, which is the Linnahall area. Work on design requirements, procurement, and the construction permit process for NBS began in January 2025 and continues into the early part of the next stage (anticipated to run from April to September 2025), running in parallel with the concept design.

Figure 5: Location of the Tallinn pilot site (red pin) and focused aerial view



(Credits: Google Maps, Maa-amet)

## Project Overview

The City of Tallinn is undertaking a coastal regeneration initiative focused on transforming a former brownfield site in the central harbour area into a resilient and inclusive public space. The project is designed to enhance physical and ecological access to the seafront, while addressing climate adaptation challenges through the implementation of NBS. It serves as a pilot for integrated urban development that combines environmental rehabilitation, public engagement, and long-term spatial transformation.

## Objectives

The primary objective is to re-establish a meaningful connection between the city and its coastline. This includes improving physical access for diverse user groups, including children, older adults, pedestrians, sauna users (there is a community sauna on the site), winter bathers, and tourists. The site will be developed into a multifunctional public space that improves access to natural areas for recreation, supports physical activity, and increases satisfaction with the coastal environment.

A key aim of the project is to demonstrate the potential of NBS in urban environments, specifically for treating snowmelt runoff and improving soil health. By applying site-specific ecological interventions, the project addresses pollution from winter street maintenance while supporting biodiversity through an increase in local fauna diversity. The site will also function as a visible demonstration area, promoting awareness of climate adaptation and the environmental value of coastal ecosystems.

## Potential Barriers

Maintenance challenges and the availability of technical expertise may impact the long-term viability and performance of NBS, resulting in limited institutional support for NBS implementation in the future. Political resistance to NBS implementation can delay necessary approvals. Changes in project timelines, whether due to seasonal constraints or administrative delays, may further complicate project delivery. Additional risks include regulatory hurdles, since existing frameworks are not well-adapted to ecological approaches, as well as fragmented coordination across municipal departments (often working in silos with differing objectives). Financial constraints may lead to a reduction in the quality, scope, or number of NBS interventions. The co-creation process may encounter conflicting interests among stakeholders.

## Use Case Scenarios

The project will explore the effectiveness of various NBS interventions in treating snowmelt water and reducing pollution on-site. Post-implementation evaluations will assess public satisfaction and changes in site accessibility (i.e. number of visitors), with particular attention to vulnerable user groups, such as children.

## Key Performance Indicators (KPIs)

Success will be measured through improvements in biodiversity, soil health, and snowmelt water treatment. Social indicators will include increased use of the site for recreation, higher levels of public satisfaction, and greater opportunities for physical activity. An additional focus will be placed on enhancing public knowledge and awareness of climate change adaptation and NBS.

***Phase 1 Stage 1-2 – Concept + Preliminary Design***

April 2025 – September 2025

This stage focuses on developing the concept, building on preparatory work initiated during the previous stage. The emphasis shifts to co-creation to gather stakeholders' input for the design. From May to August, a series of site visits, workshops, and online feedback activities will be carried out. Based on designs developed in this stage, planning application is also prepared. This stage is expected to be completed by early August or September.

***Phase 1 Stage 3 – Detailed Design***

October 2025 – December 2025

This stage is expected to begin in early October and will produce the design package needed to launch the construction work procurement process, scheduled to start in early December. The design may be further refined during construction.

***Phase 1 Stage 4 – Construction***

December 2025 – December 2026

Once the construction permit is granted, construction will begin, and the detailed design and construction activities will progress in parallel, adjusting to each other as needed. Planting will take place in accordance with the appropriate seasons, starting in spring 2026 and continuing in autumn 2026. The overall construction is expected to be completed by the end of 2026.

***Phase 1 Stage 5 – Handover and Monitoring***

From January 2027

This stage is scheduled to begin in January 2027 and continue through to the end of the project in December 2027.

***Phase 2 Stages 1-5***

September 2025 – December 2025

After the overall concept has been developed, starting from September 2025, students from the Tallinn University of Technology (TalTech) will begin designing smaller interventions (such as an adventure playground) for the pilot site. The result of the students' work will be developed further in Stage 3 and might be constructed along with the rest of the project in Stage 4. However, this is uncertain. Additional small spatial interventions will be introduced on an ongoing basis through to the end of the project.

## 2.2.2 Project Strategies

### *Cost Strategy*

Tallinn will carry out all procurements according to the city's standard procedures, with the design contract already completed and procurement for construction planned for early 2026. The project budget was defined during the proposal phase and is fully in place, with design work funded through the URBREATH project. Preparatory activities, such as the tramline installation and tactical urbanism interventions, were previously funded under the initiative "Green Tracks"<sup>2</sup> by the municipality. No private sector funding is currently planned. Additional municipal funding may be required for lighting, which is not included in the current budget due to the temporary nature of the intervention, though removable lighting remains under consideration.

Maintenance will be funded by the City of Tallinn through the Urban Environment and Public Works Department (KEKO). Tallinn aims to reduce maintenance needs and costs through the design of NBS. The city remains open to testing innovative financing and procurement approaches, particularly in future stages.

### *Planning Strategy*

The design will align with the Tallinn 2035 Development Strategy and the Tallinn Sustainable Energy and Climate Action Plan 2030. While a new city-wide masterplan is in progress, this project will specifically follow the ongoing district plan (Kesklinna linnaosa üldplaneering) and the existing detailed plans for the site.

### *Plan of Use Strategy*

Maintenance budget comes from the City, maintenance will most likely be carried out in collaboration with the Tallinn Urban Environment and Public Works Department (KEKO) and the Tallinn City Centre Administration. The project will improve safety by installing lighting and creating secure, accessible pathways into the area.

### *Inclusive Design Strategy*

The design will prioritise accessibility to accommodate diverse user needs. Tallinn has planned stakeholder engagement in two phases: in the Concept + Preliminary Design phase and after the presentation of the Detailed Design. Additionally, the City will collaborate with TalTech students, who will contribute by designing selected elements of the project.

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<sup>2</sup> Green Tracks (*Rohejalg* in Estonian) was a tactical urbanism initiative launched in 2023 during Tallinn's year as the European Green Capital. It implemented temporary and permanent interventions such as pop-up parks, street greenery, flower meadows, food forests and green bus-stop roofs across the city to enhance biodiversity, test spatial solutions, and engage citizens in transforming urban spaces (<https://greentallinn.eu/en/green-tracks/>).

### Project Team

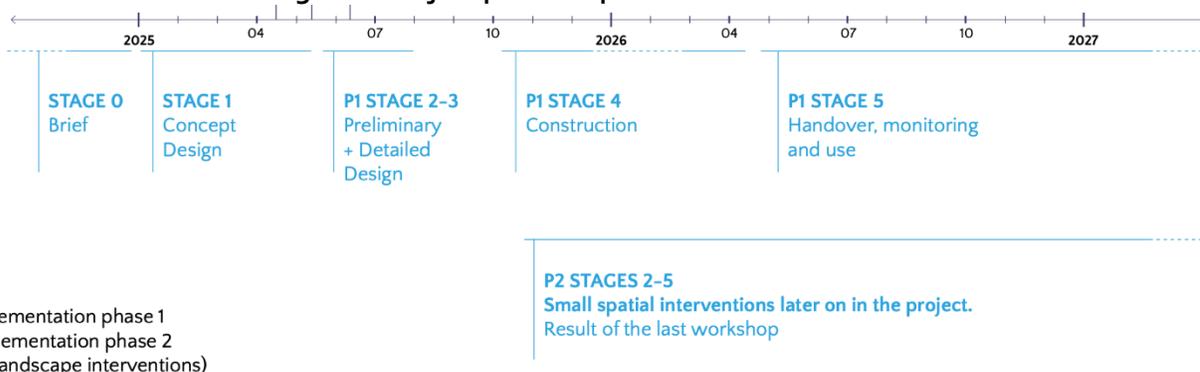
**Client Team** – Municipality (Tallinn Strategic Management Office)

**Design Team** – Design developed in collaboration with the procured designer, internal municipality designers and TalTech architecture students – the more technical NBS solutions will be designed by the procured design team. The smaller interventions will be done in co-creation between the city’s internal design team, TalTech architecture students, and the local community.

**Contractor Team** – Procured through public tendering process. There will possibly be three separate procurements – the first will cover the design of all project parts, the second will cover construction after Detailed Design stage, and the third will possibly procure lighting, but will depend on the budget.

## 2.3 Cluj-Napoca

Figure 6: Cluj-Napoca's implementation timeline



### 2.3.1 Project Design Process

The implementation of NBS will likely be developed in two phases. The first phase focuses on the development of the overall site design, including infrastructural solutions and planting. The second phase will initiate the implementation of smaller-scale spatial interventions and temporary activities, which will be shaped through Living Labs.

#### Stage 0 – Brief

January 2024 – December 2024

This stage focused on developing a brief, setting aims and choosing sites for implementation. Cluj-Napoca chose four sites in the Iris neighbourhood, however one of them was changed, in comparison to the original plan outlined in the deliverable D2.4, due to the information gathered from a co-creation workshop where discussions with locals highlighted better suitability for an alternative site.

Figure 7: Location of the Cluj-Napoca pilot site – the four selected areas in the Iris District



Credits: Cluj-Napoca Team

### Project Overview

The City of Cluj-Napoca is implementing a multifunctional NBS project aimed at transforming mixed-use and post-industrial urban areas into greener, more climate-resilient and socially inclusive spaces. The project addresses environmental challenges such as air and noise pollution, urban heat island effect, droughts and lack of biodiversity, while actively involving the local community in co-creation and maintenance processes. The project also serves as a testing ground for integrating digital tools and environmental data into participatory urban planning, offering replicable strategies for similar sites across the city.

### Objectives

The primary goal is to develop a flexible, replicable NBS that meets community needs and enhances urban biodiversity and comfort. This includes creating accessible green public and private spaces, developing green-blue corridors, and vegetated mobility routes, to strengthen ecological connectivity as well as reducing the impacts of traffic and construction-related pollution. Furthermore, the project aims to activate public spaces through temporary uses, cultural events, and community-led management models. Digital tools, including pollution metrics and heat island data, will support planning, monitoring, and long-term management.

### Potential Barriers

Several implementation challenges have been identified. Regulatory restrictions related to high-voltage power lines, flooding risks, and mobility zones outlined in the masterplan may delay or limit design flexibility. Coordination between municipal departments remains a challenge due to limited time and workforce. Land use conflicts, such as private ownership by the water utility, and the temporary discomfort experienced by residents during construction, may affect public acceptance. Moreover, limited resources and a lack of advanced environmental data could hinder effective impact monitoring. Financial constraints and a predefined budget may also restrict the scope of interventions.

## Use Case Scenarios

The project will demonstrate the value of small-scale green pockets in dense, multi-family residential areas. Community members will be actively engaged in the co-creation process, including activities like selecting and planting trees. The use of Cluj-Napoca's Local Digital Twin will allow for the integration of greening simulations to assess long-term benefits. Specific outcomes to be tracked include increases in shaded areas and reductions in CO<sub>2</sub> emissions, providing evidence of the NBS's environmental and social impact.

## Key Performance Indicators (KPIs)

The success of the project will be measured through a combination of environmental, social, and governance indicators. In terms of sustainable mobility, the project aims to promote both pedestrian and cycle traffic, reducing dependence on motorised transport. Biodiversity will be monitored through an increase in green surfaces, the expansion of high-quality biotope areas, and improvements in overall ecological value, including enhanced diversity of local flora and fauna. Environmental goals include a measurable reduction in air and noise pollution, while climate resilience will be assessed through decreased drought risk and a noticeable mitigation of the urban heat island effect. On the social side, the project seeks to improve access to natural areas for recreation, enhance community satisfaction with the greened public space, and create inclusive environments that foster social interaction and well-being. Additionally, a rise in citizen awareness of climate adaptation and nature-based solutions will indicate progress in engagement. Finally, effective governance will be reflected in ongoing community participation, increased maintenance, and stronger long-term partnerships with local stakeholders.

### *Stage 1 – Concept Design*

January 2025 – May 2025

NBS were developed through a co-design process involving four workshops, the final of which took place on 28–29 April with the participation of landscape architecture university students. Students received guidance throughout, and in May, their proposals were presented in a public exhibition, where residents were invited to vote for their preferred concept design. The municipal budget has been approved, although the installation of environmental sensors, initially planned for April–May, was delayed until the end of June due to purchase delays.

### *Stage 2+3 – Preliminary and Detailed Design*

May 2025 – October 2025

The selection of the winning design proposal is still underway, with public display and voting concluding in the second half of June. Sensor installation is scheduled for completion by the end of June. As NBS involve minimal structural change, only limited approvals are required, primarily for planting. Preparations for implementation are underway through a dedicated partnership phase running from July to October, where local businesses are to be involved in. The sensor monitoring period is expected to begin during this time. Technical drawings will be developed over the summer and beginning of

autumn as a collaboration between landscape designers and landscape architecture university students. Planting is planned for October or November, with temporary on-site activities starting as the weather permits, and continuing until the site's official opening.

#### ***Stage 4 – Construction***

October 2025 – April 2026

While co-implementation was initially set to begin as Phase 2 in October 2025, this is currently under review.

#### ***Stage 5 – Handover and Monitoring***

From January 2027

Community feedback will continue to play a key role in shaping both the project and its implementation process. Temporary activities and continuous engagement are planned for the entire duration of the project. The sensor monitoring period will run both before and after implementation, from October 2025 until May 2027, providing data to assess environmental impacts over time.

### **2.3.2 Project Strategies**

#### ***Cost Strategy***

Financing<sup>3</sup> for the NBS is drawn solely from the URBREATH project, with no direct financial contributions from the municipal budget. However, the Municipality's Green Space Department provides support through maintenance as well as supplying trees from its existing inventory and potentially offering street furniture. Cluj is also applying the "Adopt a Green Space" model, engaging local companies in maintaining green areas as part of their social responsibility. These informal sponsorships are acknowledged through visibility at public events, with potential for replication in future projects.

The municipal budget was approved in April 2025, and the procurement is expected to take place between July and October 2025. While the current budget is secured, financial constraints and a predefined budget structure require cost control. Procurement will remain below the threshold for direct acquisition, simplifying the process. The city remains open to further collaboration with private sponsors to supplement public funds.

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<sup>3</sup> The total project budget is €69,380, which includes indirect costs such as temporary activities, external services, and sensors. An additional €60,600 is allocated for subcontracting, €26,000 for equipment, and €12,000 for travel. The informal sponsorships by local companies currently range between approximately €2,000 and €3,000. The procurement process is planned for July to October 2025, with around €12,000 already spent. A budget of €15,000 is specifically allocated for sensors and their maintenance.

### ***Planning Strategy***

Cluj-Napoca's planning strategy must respond to a range of environmental and infrastructural constraints. Power lines running through the site and access corridors maintained by the water company limit areas available for intervention. Although the masterplan for the Someş River, which runs past the pilot sites, is still in development and not yet public, a technical river plan informs early design decisions. Biodiversity considerations, such as the protection of a local beaver population, also guide the planning process. As the Iris neighbourhood transitions from industrial use to new development, the project aligns with future urban change while ensuring resilience in a flood-prone landscape.

### ***Plan of Use Strategy***

The aim is to ensure minimal or no maintenance wherever possible. The City's Green Space Department will be responsible for maintaining the planted areas. Private companies working in the neighbourhood will likely also be involved in the upkeep of the area by being able to "adopt" a green space.

### ***Inclusive Design Strategy***

The areas are currently inaccessible to the public. This project aims to return these four areas to the people while establishing a connection to the riverbank. Rather than introducing hard interventions, the sites will be made accessible via the existing pavement.

### ***Project Team***

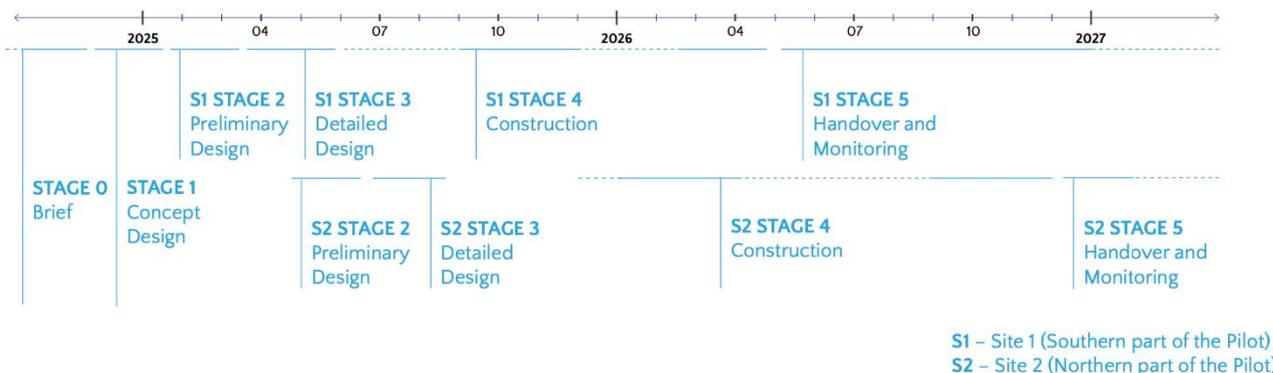
**Client Team** – Municipality of Cluj-Napoca

**Design Team** – Concept design: landscape architecture university students; technical design: Urbasofia landscape designer, consulting architect.

**Contractor Team** – Green Space Department responsible for planting, furniture and maintenance (some of the planting planned as co-implementation together with the locals – currently under review).

## 2.4 Madrid

Figure 8: Madrid's implementation timeline



### 2.4.1 Project Design Process

#### Stage 0 – Brief

January 2024 – November 2024

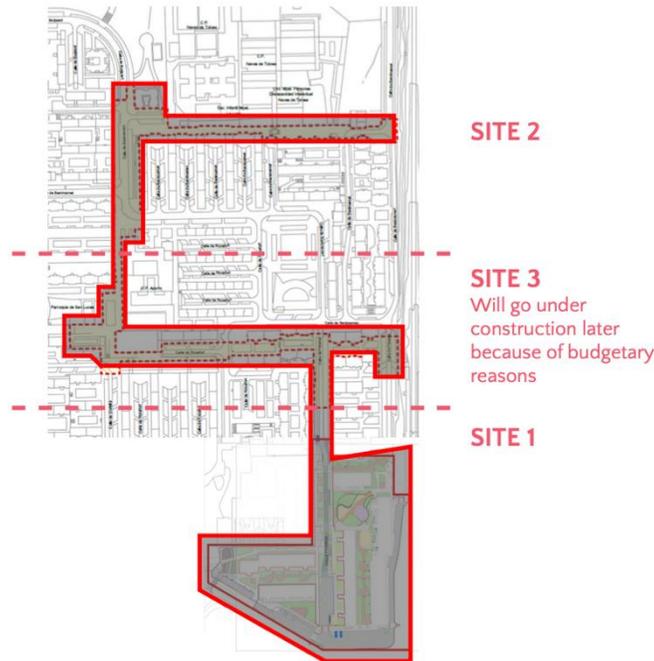
The brief for the pilot site was developed in collaboration with the community groups (already engaged through the LIFE-PACT<sup>4</sup> project) by the end of 2024.

The chosen pilot site is in the San Cristóbal neighbourhood, in the Villaverde district. It was defined at the beginning (ref. Description of Action) of the project and divided into three sections later. Interventions are planned for Site 1 (Southern part of the pilot) and Site 2 (Northern part of the pilot), but the adoption of the middle one is currently unclear due to budgeting reasons. Madrid has later introduced two additional pilot sites<sup>5</sup> that may be used to replicate the knowledge gained through URBREATH. However, those will not be analysed within the scope of this deliverable.

<sup>4</sup> LIFE-PACT (2022–2025) is a European initiative involving the cities of Madrid, Leuven, and Kraków that promotes participatory co-design of greener school environments. The project aims to enhance climate change adaptation, improve air quality, and engage communities, particularly schoolchildren, in environmental awareness and action (<https://www.lifepactreplication.org/>).

<sup>5</sup> The two additional replication sites were the area surrounding Antonio Nebrija School in the Villaverde Bajo neighbourhood and the historic centre of Villaverde in the Villaverde Alto neighbourhood.

**Figure 9: Madrid pilot site in San Cristóbal, divided into three implementation areas**



(Credits: Madrid Team)

### Project Overview

Madrid's initiative in the Villaverde district focuses on enhancing environmental quality and social cohesion through the implementation of NBS. The project targets the rehabilitation of public spaces, with a particular emphasis on accessibility, thermal comfort, and gender-sensitive design, while also supporting local small businesses as cornerstones of the community. The district has faced longstanding underinvestment; thus, the intervention aims to address a range of urban challenges by creating greener, safer environments that promote both climate resilience and everyday wellbeing.

One of the project's goals is to redesign pedestrian and school routes, aiming to extend the sense of safety typically associated with school environments into a wider urban setting. The approach is participatory and evidence-based, combining co-design workshops, targeted training, and the use of tools such as Local Digital Twins (LDTs) to visualise interventions and support informed decision-making at the district level. The integration of these elements aims to ensure long-term institutional learning and embed NBS into local governance practices.

### Objectives

The Villaverde project aims to regenerate public spaces using NBSs that deliver environmental, social, and institutional benefits. Environmentally, the project seeks to expand green spaces, increase plant diversity, improve air quality and reduce the urban heat island effect, thereby strengthening climate resilience and lowering the risk of flooding. From a social perspective, the focus is on creating inclusive

urban environments that are accessible, comfortable in terms of temperature, and equipped with adequate public sanitation and supportive infrastructure. Particular attention is given to designing spaces that meet the needs of children, older adults, and women, with safe and clear school routes forming a central part of the strategy. The project also acknowledges the importance of local businesses in building social cohesion and aims to enhance their visibility and sustainability. In terms of governance, there is a strong emphasis on raising awareness and strengthening skills related to climate adaptation and NBS among both residents and municipal staff. The shared responsibility helps to build lasting partnerships and ensure that the NBS are fully integrated into urban planning processes.

### **Potential Barriers**

Several challenges may affect the successful delivery of the project. Poor coordination between municipal departments risks producing fragmented actions that undermine the overall coherence of the strategy. Issues around land use, especially the activation of sites with unclear ownership, could cause delays and complicate the planning process. Maintenance remains a key concern since current service contracts often do not address the specific needs of NBSs, even when such approaches are not necessarily more costly or labour-intensive. Without appropriate maintenance arrangements, the effectiveness and durability of interventions may be compromised. Additionally, monitoring the project's impacts across the City's operations proves difficult to institutionalise. Existing monitoring tends to focus on individual projects rather than supporting their application into wider everyday practice. To address this, the project must prioritise simplifying and streamlining data collection so that the information gathered is practical and supports long-term decision-making.

### **Use Case Scenarios**

The project will gather and organise information on past and ongoing studies, plans, interventions and potential NBS for the Villaverde district. It will organise training and co-design sessions to engage residents and staff, while using LDTs to visualise data and simulate outcomes for better decision-making by district officials. Collaboration efforts across departments and stakeholders will be monitored to ensure effective and lasting cooperation.

### **Key Performance Indicators (KPIs)**

In terms of mobility, the project seeks to reduce the speed of motorised traffic and promote pedestrian movement, especially around school routes. Biodiversity will be measured by an increase in the area of green spaces and the diversity of plant species. Environmental quality will be monitored through reductions in air pollution levels. Climate resilience will be assessed by tracking decreases in flood risk and the urban heat island effect. Social indicators will focus on improved access to natural areas, enhanced public sanitation facilities, and overall liveability. The increase in understanding of climate adaptation and NBSs among residents and city officials will be measured. Finally, the project will measure the increase in recognition and integration of NBS in local governance practices, as well as the success in building long-term stakeholder partnerships.

### ***Stage 1 – Concept Design***

Site 1: November 2024 – January 2025

Site 2: November 2024 – April 2025

The developments on Site 1 have progressed at a faster pace and remain several months ahead, allowing Site 2 to adapt based on lessons learned.

### ***Stage 2 – Preliminary Design***

Site 1: January 2025 – March 2025

Site 2: April 2025 – June 2025

This stage has recently concluded on Site 1 and is nearing completion on Site 2. Both design stages are being guided by the district strategy for Villaverde, which is being developed concurrently in the background. Scheduled to run from May 2025 until the end of the year, the strategy comprises a diagnostic phase, the formulation of a future vision, the definition of thematic axes and areas of action, as well as the identification of both spatial and non-spatial interventions.

### ***Stage 3 – Detailed Design***

Site 1: March 2025 – May 2025

Site 2: June 2025 – August 2025

Site 2 has just entered this stage, while it was recently concluded on Site 1.

### ***Stage 4 – Construction***

Site 1: June 2025 – April 2026

Site 2: January – May 2026

Site 1 has just entered this stage: demolition is already underway in the first half of 2025 and construction is expected to begin in autumn 2025, with planting taking place in autumn 2025 and spring 2026. Site 2 works are expected to start shortly in 2026, with the goal of having it significantly advanced (or completed) by December 2026. Planting will take place in spring 2026 and possibly in autumn as well. Additional activities for this stage include coordination and commissioning of the designs.

### ***Stage 5 – Handover and Monitoring***

Site 1: From April 2026

Site 2: From December 2026

This stage is scheduled to begin in April 2026 on Site 1, with Site 2 following in December 2026. The monitoring process will take place throughout 2027, until the end of the project.

## 2.4.2 Project Strategies

### *Cost Strategy*

Funding for Site 1 and Site 2 is confirmed, primarily through European funds from the Horizon Europe programme, complemented by contributions from the Madrid City Council. Municipal contributions are drawn from the regular budgets of the General Directorate Urban Regeneration and the District of Villaverde, with additional collaboration sought from other departments.<sup>6</sup> Financing for Site 3 remains uncertain and partly conditional on outcomes, though Madrid is prioritising public funding and actively exploring further municipal sources, particularly given Villaverde's status as a disadvantaged district.

While private financing remains difficult within the current municipal framework, and Public-Private Partnerships are rare, Madrid may explore such options in the longer term. To maximise resources, the city will continue to coordinate across departments. Procurement for Site 1 began in spring 2025, with Site 2 scheduled for August 2025. Maintenance will be procured through public tender, although regulatory constraints may limit the implementation of innovative procurement practices.

### *Planning Strategy*

Madrid's planning strategy centres on the Villaverde Industrial Spaces Plan, where an overarching opportunity mapping exercise guides both the pilot and replication areas. By investigating the district's multiple layers (like commerce, safety, urban nature, resilience, mobility, and accessibility), the city will develop a common strategic framework that can adapt to the specific needs of each site. Interventions will align with existing Spatial Planning regulations, including requirements such as the green factor, and will ensure full compliance with the City's General Plan to coordinate actions across departments.

### *Plan of Use Strategy*

Madrid's plan of use strategy will ensure long-term quality and maintenance through a publicly managed, privately implemented model. Maintenance services will be procured via public tender. The selection of urban furniture will be closely coordinated within the municipality, ensuring that all new elements meet durability and maintenance requirements before installation.

### *Inclusive Design Strategy*

Madrid's inclusive design strategy is rooted in the specific challenges and opportunities presented by Villaverde, one of the city's most vulnerable districts in terms of climate, economic, and social factors. By aligning URBREATH with initiatives such as LIFE-PACT, the city aims to leverage its local ecosystem to generate broader and more sustained impact.

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<sup>6</sup> A total of €2.1 million is already being executed, while €1.5 million remains pending approval from the territorial rebalancing fund for the southern and eastern districts.

The project is committed to fostering deep social inclusion by addressing the needs of diverse and often marginalised communities. Physical accessibility will be ensured in accordance with regulations, while the Department of Urban Regeneration's expertise in gender-sensitive design will inform the development of more equitable public spaces. Through this approach, Madrid seeks not only to improve Villaverde, but to learn how to scale effective climate adaptation and social inclusion strategies across the city.

### *Project Team*

**Client Team** – Municipality (district, Department of Urban Regeneration and inter-departmental working group).

**Design Team** – Different design teams for pilot and replication areas. The team is getting input from inter-departmental working team, as well as the Department of Urban Regeneration.

**Contractor Team** – Will be procured through a public tendering process.

## 3 Conclusions

### 3.1 Methodology

This deliverable establishes a framework for guiding and monitoring the implementation of NBS across the four FRC pilot sites within the URBREATH project. By adapting and contextualising the RIBA Plan of Work to suit the project's European context, landscape architecture focus, and NBS specificity, it provides a phased roadmap from initial brief setting to post-occupancy evaluation.

Crucially, the deliverable not only supports the effective and context-sensitive deployment of NBS interventions but also ensures their alignment with URBREATH's broader strategic and methodological goals. It aspires to connect high-level theoretical work and on-the-ground implementation, enabling consistency, transparency, and shared understanding across FRCs and work packages.

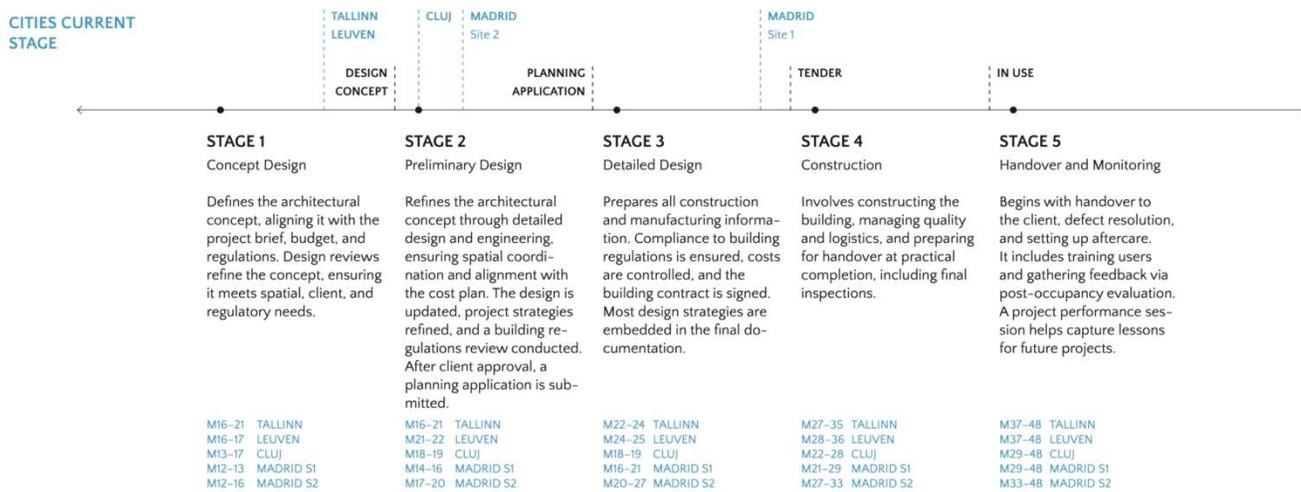
Through city-specific planning, timelines, and integration with key project strategies, this deliverable lays the groundwork for both short-term implementation success and the long-term viability of NBS in the FRCs. It creates a foundation for the approach in future project phases and across the wider network of URBREATH partners.

### 3.2 Comparison of Cities' Timelines and Scopes

As illustrated in Figure 10, the progress of the FRC sites across the defined stages of this framework varies significantly. This variation can be attributed to several factors, including differences in the scope and budget of the interventions, as well as the distinct objectives and the nature of the NBS being implemented. At the time of writing this report, all FRCs have advanced to the design stages, with some sites already entering the construction stage. The current status of each city is as follows:

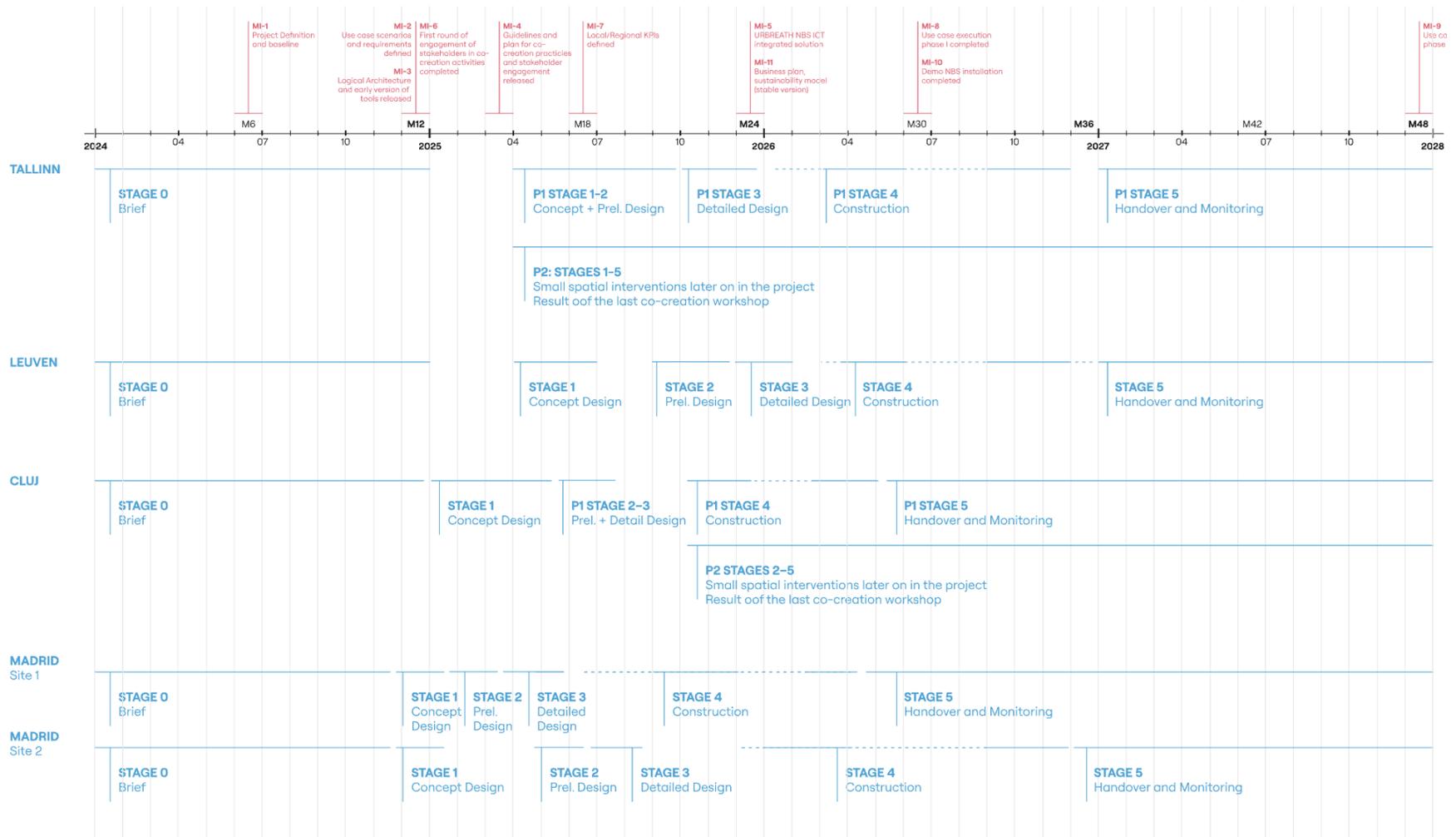
- Leuven: Stage 1 – Concept Design
- Tallinn: Stage 1 – Concept and Preliminary Design
- Cluj-Napoca: Stage 1 – Concept Design (approaching Stage 2)
- Madrid Site 1: Stage 3 – Detailed Design
- Madrid Site 2: Stage 2 – Preliminary Design

Figure 10: The current status of the FRCs on the described framework



As illustrated in Figure 11, the KPIs established by the FRCs and referenced in this deliverable will be fully defined by the end of M18 (Milestone 7), coinciding with the submission of this deliverable. As such, the information concerning the KPIs remains subject to change. The Use Case Execution Phase 1 (Milestone 8) and the Demo NBS Installation (Milestone 10) will be completed by all cities in accordance with the respective deadlines. Nevertheless, in certain cases (such as in Cluj-Napoca), the initial implementation might focus primarily on planting activities, with the remaining design elements to be constructed at a later stage.

Figure 11: Comparison of the FRCs timelines in relation to the milestones defined within URBREATH



### 3.3 Further plans

For T6.1, the Plan of Work framework will continue to be used and developed further:

1. **Bringing Cities and WP tasks closer** – As preparation for the next steps, the cities' timelines have been overlapped with the URBREATH project detailed timeframe, which highlights the work that is produced directly in relation to FRCs implementation processes. For the next steps, the cities will be asked to specify how (and when) the tasks will be used to further connect them to the work produced in the tasks and ensure validation for work produced by the consortium. A list of project strategies will be reviewed, and the opportunity to connect this more closely to work package themes and/or the methods of how KPIs were set in T5.6 will be investigated. Annexes 1 and 2 of this document show the Miro board where the project technical partners were invited to collaborate on the implementation plan, indicating the status of the development of the technical tools in relation to the cities' project stages. As a next step, updated project information will be gathered from the cities and project partners, building on the same documents. Annex 3 shows the work-in-progress FRCs implementation plans, which were used for discussions with the cities at the workshop organised in collaboration with WP2-6-7 at the General Assembly held in Cluj-Napoca in May 2025. Those will be developed further in the following months.
2. **Creating structure for better overview** – A stage report will be asked from the cities at the end of every stage, that will include a checklist of the core tasks and information exchange to monitor the development and observe the difference of the methods in ways the cities are conducting their implementation process. A cross-city summary will be produced based on the reports. Meanwhile, monthly cities calls will be a source of running updates of the processes and the topics that will be touched on for this will be adjusted according to need.

For T6.4, Plan of Use Strategy together with preparation for Stage 4 – Construction will continue to be in focus during the planning procedures. Plan of Use Strategy will cover the use and maintenance of the pilot sites, and potential later adjustments according to stakeholder feedback and KPI monitoring during Stage 5 – Handover and monitoring, will be implemented, where possible.

#### **D6.2 – NBS deployment, monitoring and validation plan & report - V2**

By the next iteration of this deliverable (M30), FRCs have all reached Stage 4 – Construction, which allows the focus of the second version of this deliverable to be on comparison and analysis of the planning process of FRCs up until the end of Stage 3, as well as a more in-depth preparation for construction, use and maintenance.

### 3.4 Scaling

Plan of Work approach is tested and adjusted in T7.2 – Follower City Project Plan and Development. The information gathered so far lays also groundwork for T6.2 (Customisation of the specific institutional and technical NBS framework), T6.3 (Procurement and cities preparation for intervention), and through them, is also connected to the T7.3 (Development of Urban Greening Investment Plans for Lighthouse Cities), and T7.4 (Collaborative procurement models and Innovative financing instruments and structures).

The approach will provide input for T7.5 (NBS implementation roadmap).

## 4 References

- [1] RIBA (2020) *RIBA Plan of Works Overview*, Royal Institute of British Architects. <https://www.architecture.com/knowledge-and-resources/resources-landing-page/riba-plan-of-work?srsId=AfmBOooVnhRyy7kdq7zfmQYDVIRG-mSN7zzu1qdJCGx1g1oxqpu9LMCW> (Accessed: [13.07.2025]).

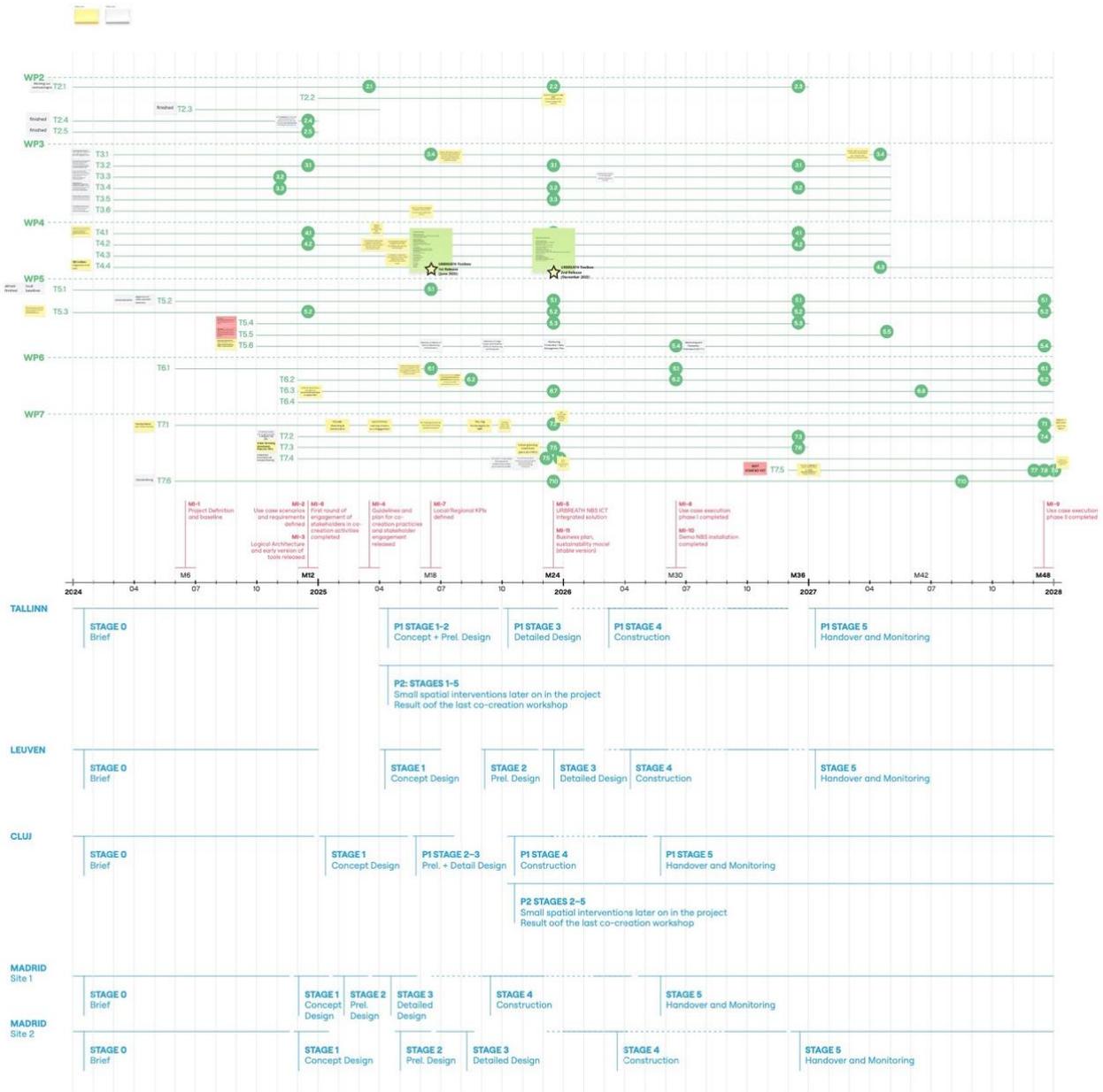
# 5 Annexes

## 5.1 Annex 1 – Collaborative Miro Board

What support does the task under your WP offer to FRCs in the process of implementing their NBS and when?

Place a yellow post-its onto the timeline along the specific task to mark outputs planned, which directly support the cities and would impact their planning. If possible, give it a time indication. If the output is planned without a specific timeframe in mind at this stage, place it somewhere beyond the timeline. If the task is not directly related to the FRCs NBS planning, mark it with grey post-it.

**KEY**  
● deliverable  
 stage duration  
 stage 4 potential duration outside of planting seasons



## 5.2 Annex 2 – Collaborative Miro Board

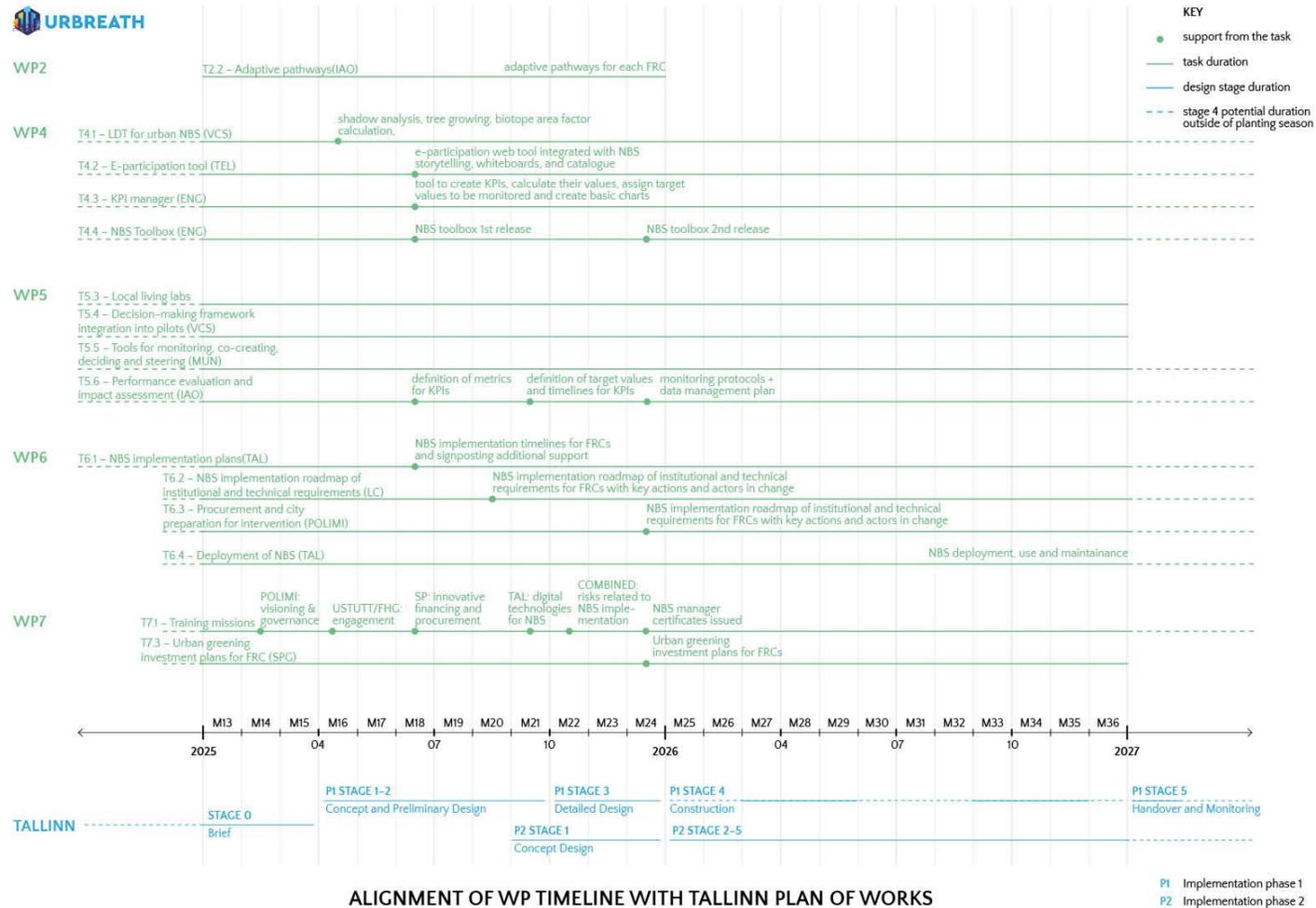
How does the tasks under your WP relate to the project strategies and its stages?

Specify how the task is able to support the cities along the different implementation stages. If the task fits under a specific strategy, leave your post-its to the relating section. If not, but the task still has a timeframe connected to the implementation stages, leave the post-its under 'overall planning process'.



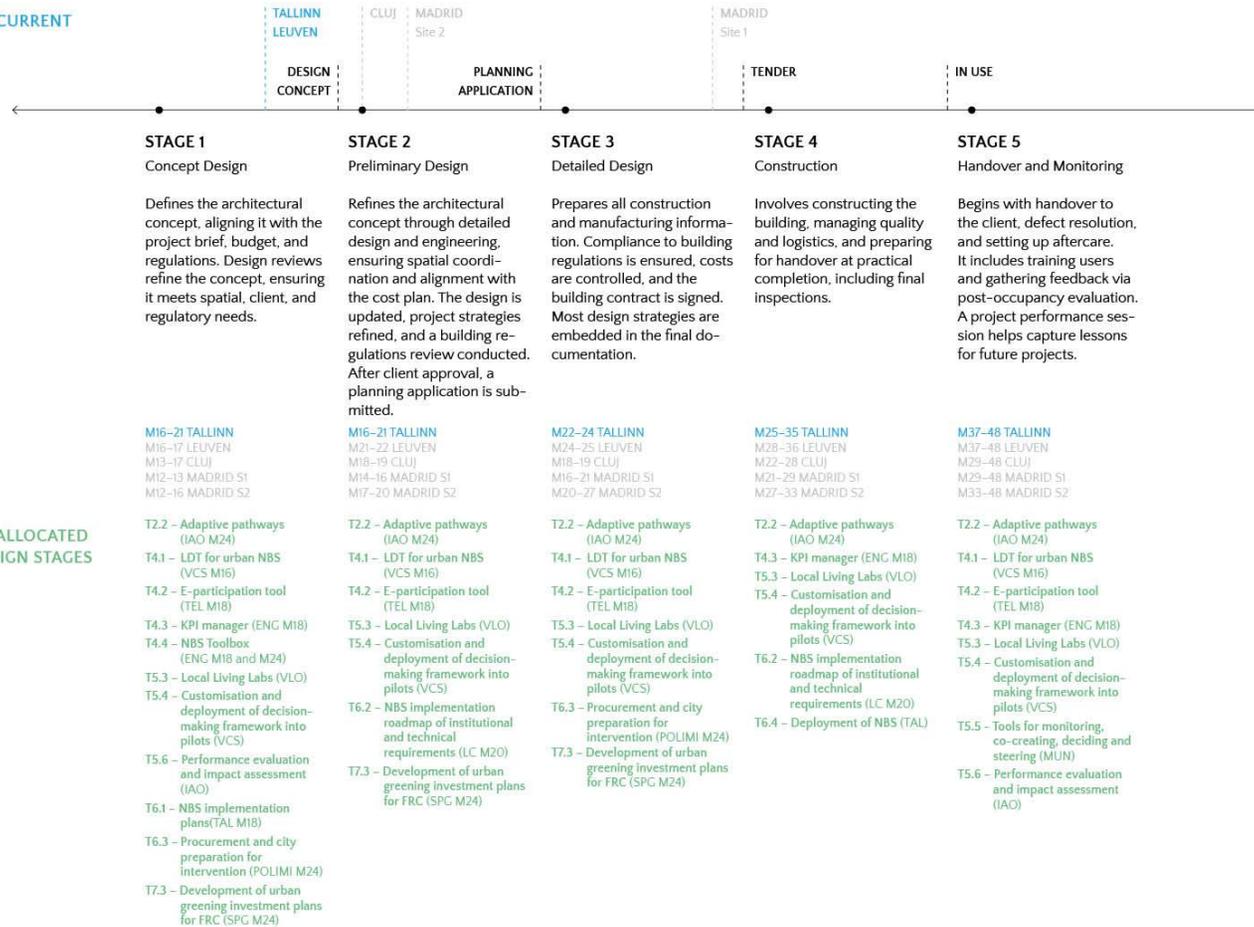
	2022	2023	2024	2025	2026	2027	
<b>OVERALL PLANNING PROCESS</b>	STAGE 1 Concept Design T1, T2, T3, T4	STAGE 2 Preliminary Design T5, T6, T7, T8, T9, T10	STAGE 3 Detailed Design T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 4 Construction T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 5 Handover and Monitoring T1, T2, T3, T4, T5, T6, T7, T8, T9, T10		
<b>COST STRATEGY</b>	STAGE 1 Concept Design T1, T2, T3, T4	STAGE 2 Preliminary Design T5, T6, T7, T8, T9, T10	STAGE 3 Detailed Design T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 4 Construction T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 5 Handover and Monitoring T1, T2, T3, T4, T5, T6, T7, T8, T9, T10		
<b>PLANNING STRATEGY</b>	STAGE 1 Concept Design T1, T2, T3, T4	STAGE 2 Preliminary Design T5, T6, T7, T8, T9, T10	STAGE 3 Detailed Design T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 4 Construction T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 5 Handover and Monitoring T1, T2, T3, T4, T5, T6, T7, T8, T9, T10		
<b>PLAN OF USE STRATEGY</b>	STAGE 1 Concept Design T1, T2, T3, T4	STAGE 2 Preliminary Design T5, T6, T7, T8, T9, T10	STAGE 3 Detailed Design T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 4 Construction T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 5 Handover and Monitoring T1, T2, T3, T4, T5, T6, T7, T8, T9, T10		
<b>INCLUSIVE DESIGN STRATEGY</b>	STAGE 1 Concept Design T1, T2, T3, T4	STAGE 2 Preliminary Design T5, T6, T7, T8, T9, T10	STAGE 3 Detailed Design T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 4 Construction T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 5 Handover and Monitoring T1, T2, T3, T4, T5, T6, T7, T8, T9, T10		
<b>HEALTH AND SAFETY STRATEGY</b>	STAGE 1 Concept Design T1, T2, T3, T4	STAGE 2 Preliminary Design T5, T6, T7, T8, T9, T10	STAGE 3 Detailed Design T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 4 Construction T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 5 Handover and Monitoring T1, T2, T3, T4, T5, T6, T7, T8, T9, T10		
<b>SUSTAINABILITY STRATEGY</b>	STAGE 1 Concept Design T1, T2, T3, T4	STAGE 2 Preliminary Design T5, T6, T7, T8, T9, T10	STAGE 3 Detailed Design T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 4 Construction T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	STAGE 5 Handover and Monitoring T1, T2, T3, T4, T5, T6, T7, T8, T9, T10		

### 5.3 Annex 3 – Cities' Timelines and Stages

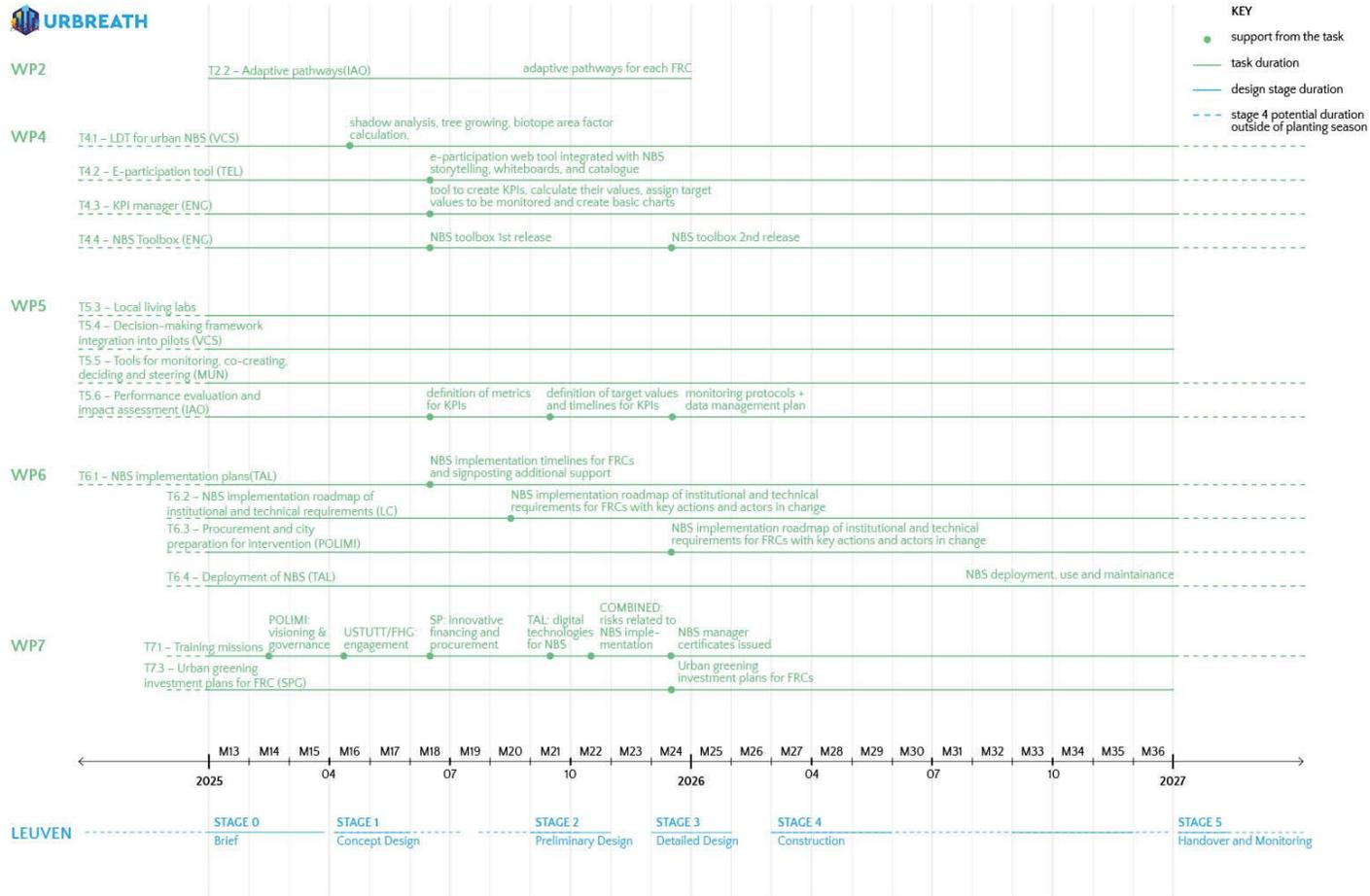




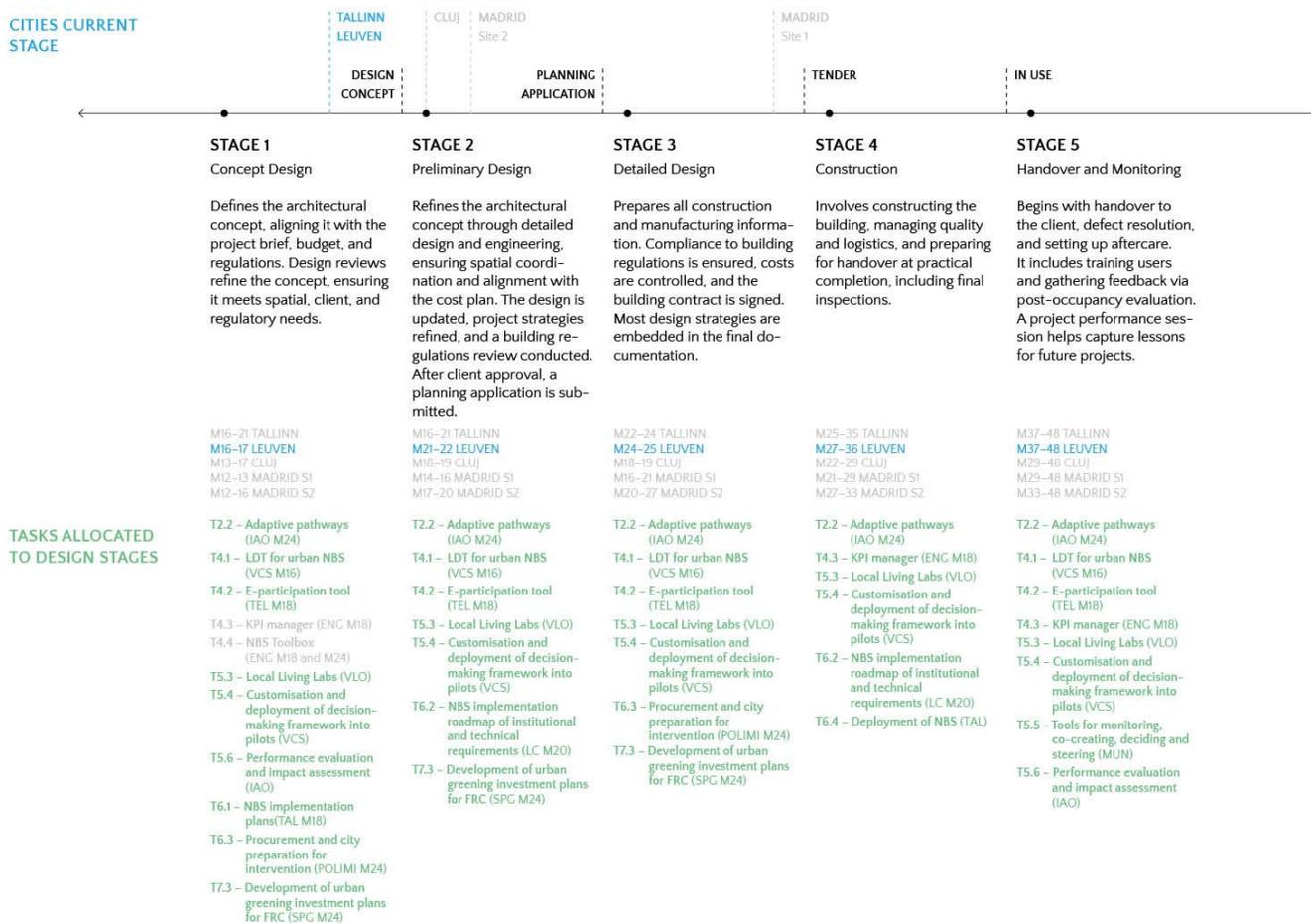
CITIES CURRENT  
STAGE

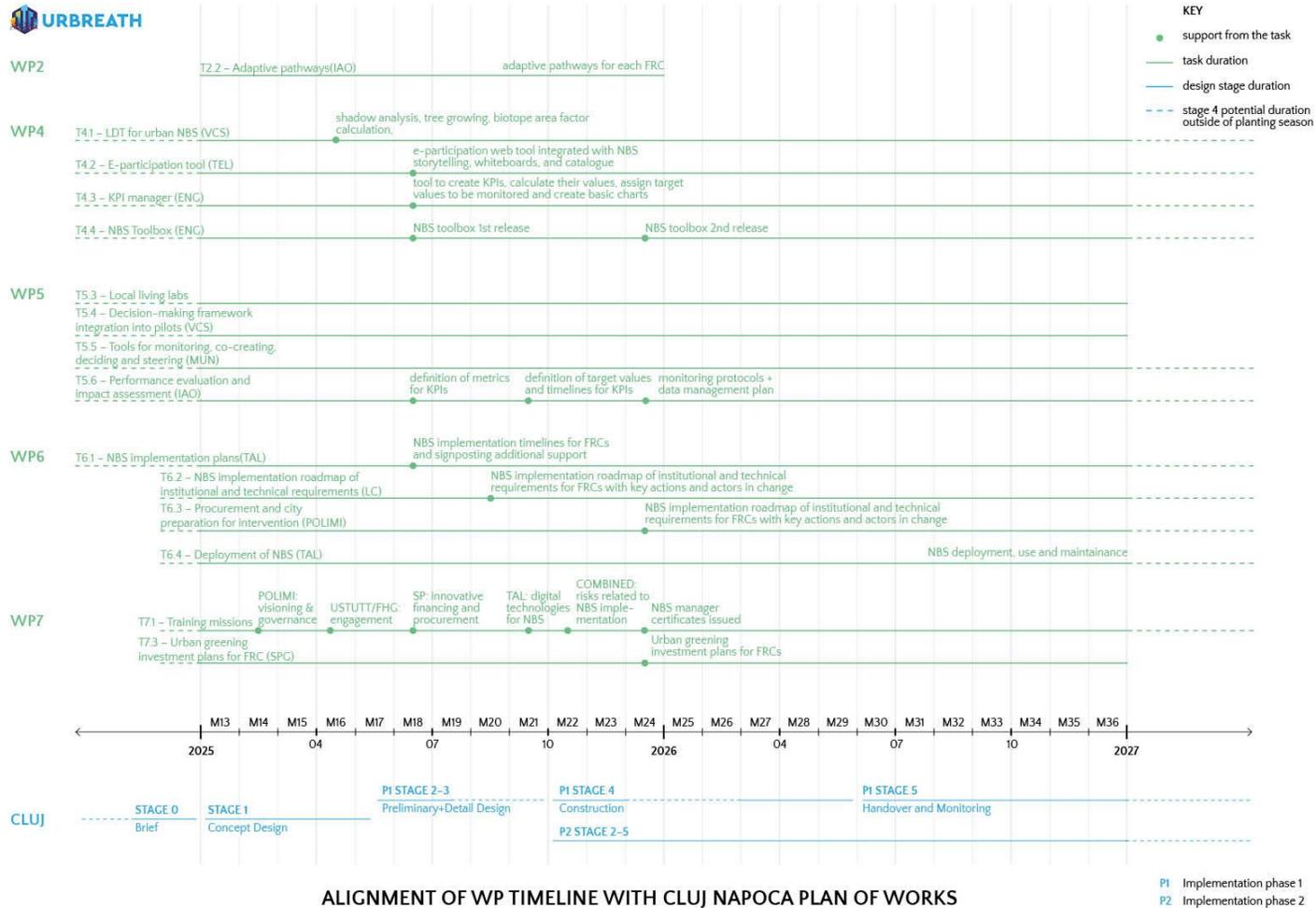


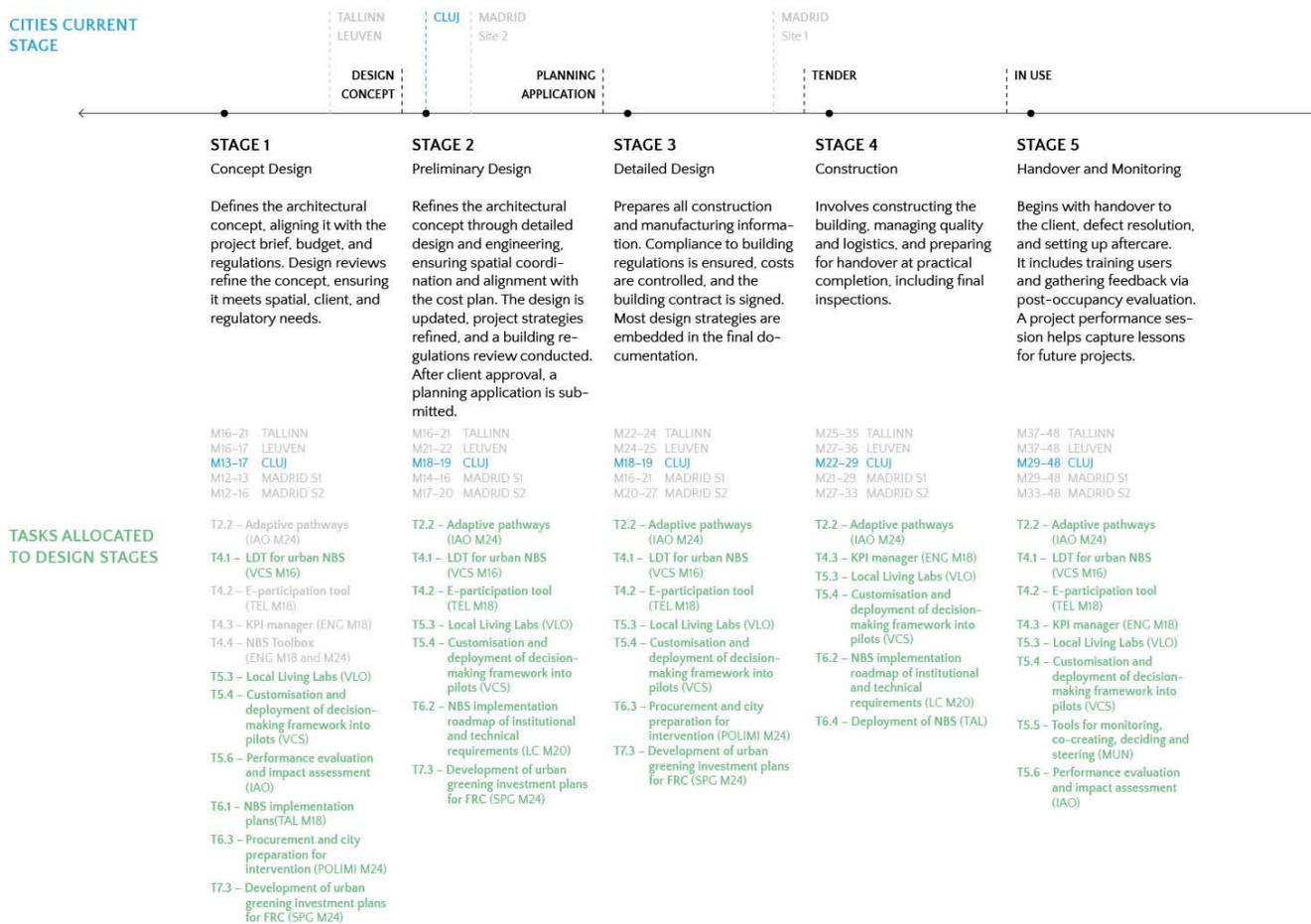
TASKS ALLOCATED  
TO DESIGN STAGES

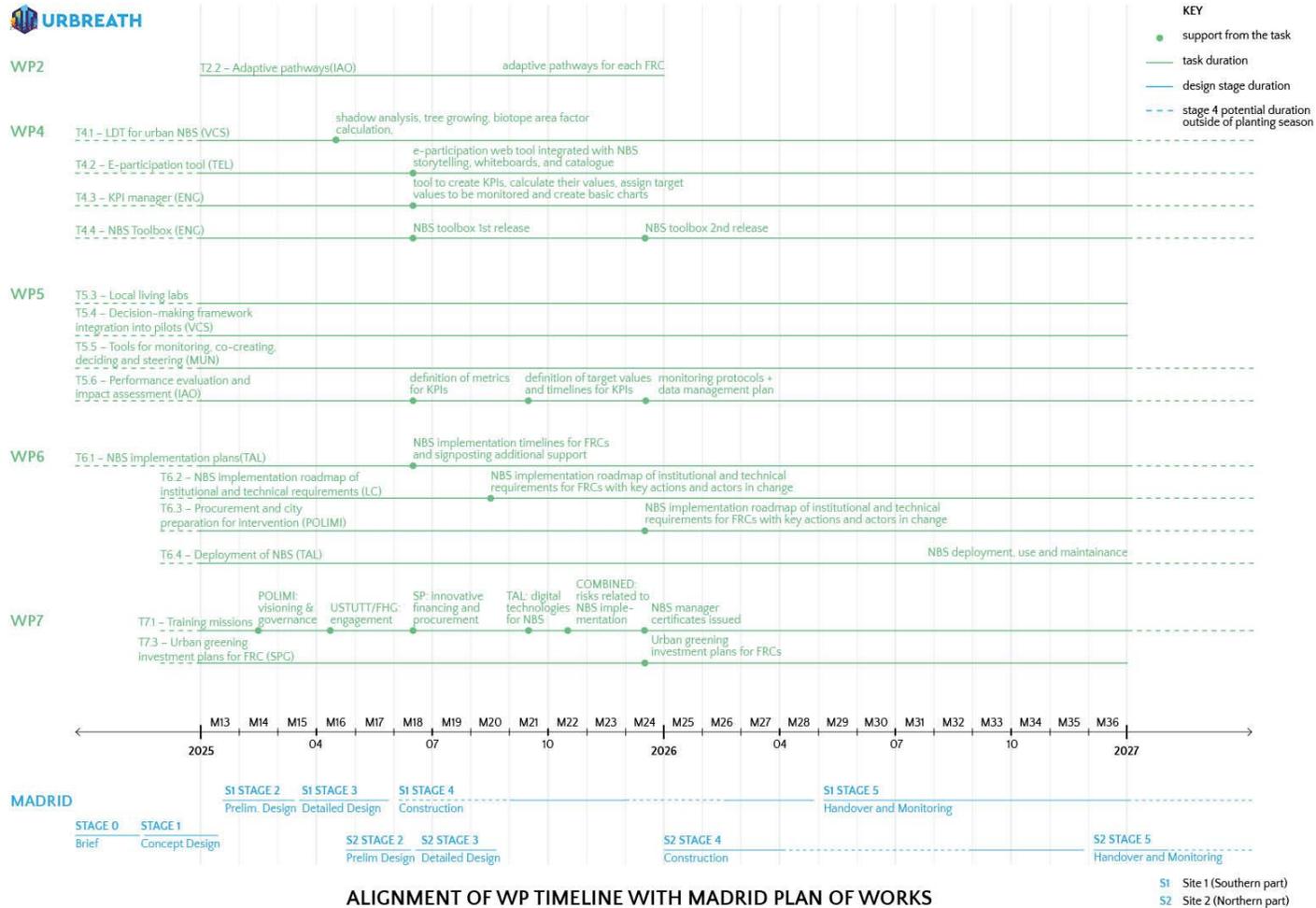


ALIGNMENT OF WP TIMELINE WITH LEUVEN PLAN OF WORKS



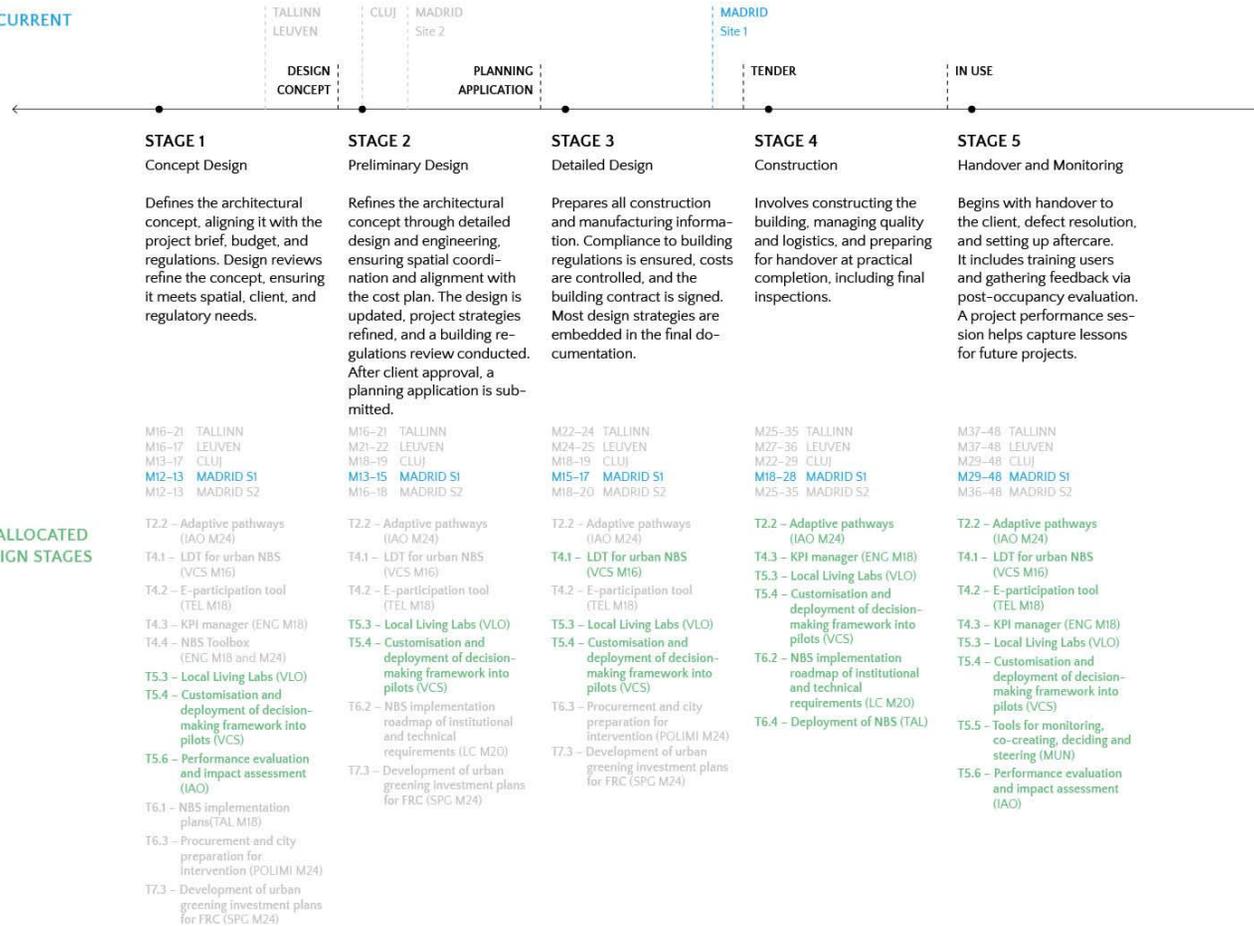






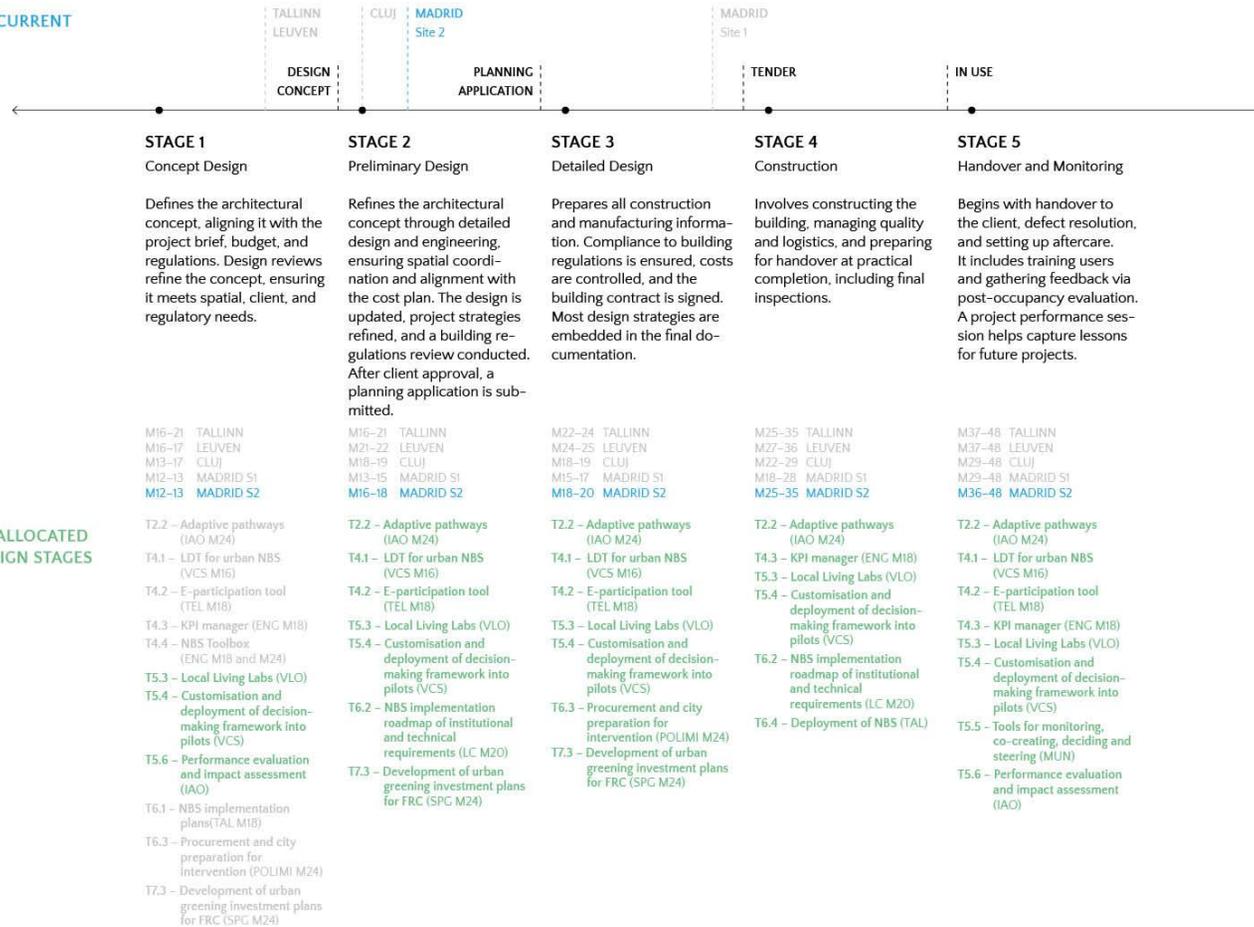


CITIES CURRENT STAGE



TASKS ALLOCATED TO DESIGN STAGES

URBREATH  
CITIES CURRENT  
STAGE



TASKS ALLOCATED  
TO DESIGN STAGES

## 5.4 Annex 4 – Cities' Plan of Works Slides

<h1>T6.1 Plan of Works</h1> <h2>Leuven</h2> <p>May 22nd 2025 in Cluj</p> <p><small>This project is co-funded by the European Union under grant agreement 101002070.</small></p>	
<p><b>Planning stages</b></p> <p><b>Community involvement</b></p>	
<h3>Project Brief</h3>	<h3>Aims</h3> <ul style="list-style-type: none"> <li>• <b>Creating a greener, climate-adaptive</b> Krakau Square.</li> <li>• <b>Combating heat islands</b>, capturing and storing carbon.</li> <li>• <b>Increasing resilience</b> to heavy rainfall and droughts.</li> <li>• <b>Enhancing biodiversity</b> in the built environment.</li> <li>• <b>Improving the overall appeal and quality of life</b> for citizens.</li> </ul>
<h3>Potential Barriers</h3> <ul style="list-style-type: none"> <li>• <b>Regulatory hurdles</b> (though limited)</li> <li>• <b>Land use</b> change and mobility constraints (traffic and parking reduction could lead to community's resistance)</li> <li>• <b>Maintenance</b> requiring more labour (thus, a larger financial investment)</li> <li>• <b>Financial constraints</b> and predefined budget</li> <li>• <b>Political resistance</b> to NBS implementation</li> <li>• <b>Limited experience</b> within municipality (urban digital twin and design)</li> <li>• <b>Running the co-creation process</b> (possible conflicting interests)</li> </ul>	<h3>Use Case Scenarios</h3> <ul style="list-style-type: none"> <li>• <b>Get input and interaction with stakeholders</b> to shape their case (using LL and DT).</li> <li>• <b>Monitor environmental effects and ecosystem services</b> resulting from the redesign of the square.</li> <li>• <b>Monitor social justice and well-being.</b></li> </ul>

<p><b>URBREATH</b></p> <h3>Stakeholders</h3> <table border="0"> <tr> <td> <p><b>GOVERNMENT</b> City's departments</p> <ul style="list-style-type: none"> <li>• Public Works,</li> <li>• Participation and Liveability</li> <li>• ICT and Data,</li> <li>• Mobility</li> <li>• Accessibility</li> <li>• Heritage</li> <li>• Sustainability</li> </ul> <p>Smart City Leuven</p> </td> <td> <p><b>UNIVERSITY</b> • KU Leuven</p> <ul style="list-style-type: none"> <li>• Taltech</li> <li>• UrbanLab</li> </ul> </td> <td> <p><b>COMMUNITY</b></p> <ul style="list-style-type: none"> <li>• Citizens</li> <li>• Lower socioeconomic status groups</li> <li>• Students</li> <li>• Community watchers</li> <li>• Youth workers</li> <li>• Neighbourhood police</li> <li>• Neighbourhood centre</li> </ul> </td> <td> <p><b>INDUSTRY</b></p> <ul style="list-style-type: none"> <li>• Leuven 2030</li> <li>• UrbanSense (data platform)</li> <li>• Soccer club</li> <li>• Social housing company</li> <li>• Local shops</li> </ul> </td> </tr> </table>	<p><b>GOVERNMENT</b> City's departments</p> <ul style="list-style-type: none"> <li>• Public Works,</li> <li>• Participation and Liveability</li> <li>• ICT and Data,</li> <li>• Mobility</li> <li>• Accessibility</li> <li>• Heritage</li> <li>• Sustainability</li> </ul> <p>Smart City Leuven</p>	<p><b>UNIVERSITY</b> • KU Leuven</p> <ul style="list-style-type: none"> <li>• Taltech</li> <li>• UrbanLab</li> </ul>	<p><b>COMMUNITY</b></p> <ul style="list-style-type: none"> <li>• Citizens</li> <li>• Lower socioeconomic status groups</li> <li>• Students</li> <li>• Community watchers</li> <li>• Youth workers</li> <li>• Neighbourhood police</li> <li>• Neighbourhood centre</li> </ul>	<p><b>INDUSTRY</b></p> <ul style="list-style-type: none"> <li>• Leuven 2030</li> <li>• UrbanSense (data platform)</li> <li>• Soccer club</li> <li>• Social housing company</li> <li>• Local shops</li> </ul>	<p><b>URBREATH</b></p> <h3>Project Strategies</h3>
<p><b>GOVERNMENT</b> City's departments</p> <ul style="list-style-type: none"> <li>• Public Works,</li> <li>• Participation and Liveability</li> <li>• ICT and Data,</li> <li>• Mobility</li> <li>• Accessibility</li> <li>• Heritage</li> <li>• Sustainability</li> </ul> <p>Smart City Leuven</p>	<p><b>UNIVERSITY</b> • KU Leuven</p> <ul style="list-style-type: none"> <li>• Taltech</li> <li>• UrbanLab</li> </ul>	<p><b>COMMUNITY</b></p> <ul style="list-style-type: none"> <li>• Citizens</li> <li>• Lower socioeconomic status groups</li> <li>• Students</li> <li>• Community watchers</li> <li>• Youth workers</li> <li>• Neighbourhood police</li> <li>• Neighbourhood centre</li> </ul>	<p><b>INDUSTRY</b></p> <ul style="list-style-type: none"> <li>• Leuven 2030</li> <li>• UrbanSense (data platform)</li> <li>• Soccer club</li> <li>• Social housing company</li> <li>• Local shops</li> </ul>		
<p><b>URBREATH</b></p> <h3>Cost Strategy</h3> <p>Procurement will likely use an <b>existing city-approved framework</b> for re-greening and de-sealing works, enabling faster mobilisation with pre-approved contractors. In parallel, the team is exploring <b>circular approaches</b> and involving social enterprises to support sustainability and social inclusion, though these initiatives are still subject to confirmation.</p> <p>The cost strategy section will be renewed later in the summer.</p>	<p><b>URBREATH</b></p> <h3>Planning Strategy</h3> <p>Leuven's planning strategy emphasizes <b>responsiveness to local conditions</b>. Interventions will connect adjacent areas shaped by existing plans and developments (such as the <b>masterplan</b> of a neighbouring site and recent developments in another neighbouring site), despite the site itself lacking specific constraints.</p> <p>Leuven is exploring ways to add value to the project through circular strategies like material reuse, although its feasibility is still being assessed.</p>				
<p><b>URBREATH</b></p> <h3>Plan of Use Strategy</h3> <p>Leuven's plan for use strategy focuses on <b>stakeholder engagement</b> in shaping the project. Feedback from key stakeholders is gathered through the use of Living Labs and Digital Twin technology. The strategy includes mechanisms to <b>monitor social justice and well-being over time</b>. The <b>environmental impacts and ecosystem services</b> resulting from the square's redesign will also be monitored.</p>	<p><b>URBREATH</b></p> <h3>Inclusive Design Strategy</h3> <p>Leuven's inclusive design strategy takes shape in Krakau Square, situated in one of the city's more socially vulnerable neighbourhoods, marked by a high concentration of social housing, low-income households, and a significant number of refugees and single-person residents. Social inclusion is supported through <b>socially responsible procurement</b>.</p> <p>The city's internal design team works closely with departments for <b>citizen engagement, mobility, heritage, accessibility and the innovation program Smart City</b> to integrate diverse perspectives into the design process. Community groups including students, youth workers and local residents are actively involved in the design process to ensure the project responds to real needs.</p>				
<p><b>URBREATH</b></p> <h3>Project Team</h3> <p><b>Client Team</b> – Municipality (the city of Leuven, Department of Urban Design and Public Works)</p> <p><b>Design Team</b> – Internal design team of the city, consisting of landscape designers and engineers. The team is getting input from the departments of citizen engagement, mobility, heritage, accessibility, etc., as well as the initiative Smart City.</p> <p><b>Contractor Team</b> – Will be procured through public tendering process (to engage practices promoting material reuse and social inclusion) or the city will collaborate with its regular partners under an existing partnership agreement. Certain tasks like planting might be carried out by internal resources.</p>					

<h1 style="text-align: center;">URBREATH</h1> <h2 style="text-align: center;">T6.1 Plan of Works</h2> <p style="text-align: center;">Tallinn May 22nd 2025 in Cluj</p> <p style="font-size: small;">The project is co-funded by the European Union under grant agreement ID 10107076</p>	<p> <b>Implementation Phase 1:</b> Small landscape interventions  <b>Implementation Phase 2:</b> Small spatial interventions later on in the project. Result of the last workshop     </p>				
<h3 style="text-align: center;">Project Brief</h3>	<h3 style="text-align: center;">Aims</h3> <ul style="list-style-type: none"> <li>Improving access to the seafront</li> <li>Transforming a former brownfield site in the central harbour zone into an attractive, inclusive public space through social, environmental, and ecological upgrades.</li> <li>Promoting awareness of climate adaptation and the value of coastal ecosystems by developing a demonstration area for urban coastal NBS.</li> <li>Engaging residents and communities in co-planning and design processes.</li> <li>Expanding short-term interventions into long-term, multi-purpose public spaces.</li> <li>Reducing snowmelt pollution by applying site-specific NBS adapted to urban streets.</li> <li>Sharing knowledge and experience with other FRCS and FLCs to make improvements</li> </ul>				
<h3 style="text-align: center;">Potential Barriers</h3> <ul style="list-style-type: none"> <li>Maintenance challenges</li> <li>Changes in timeline</li> <li>Regulatory hurdles</li> <li>Lack of technical expertise</li> <li>Poor coordination (working in silos and with different objectives)</li> <li>Financial constraints resulting in reducing the quality or the amount of NBS solutions</li> <li>Political resistance to NBS implementation</li> <li>Running the co-creation process (possible conflicting interests)</li> </ul>	<h3 style="text-align: center;">Use Case Scenarios</h3> <ul style="list-style-type: none"> <li>Explore possibilities of location of specific NBSs for snow meltwater solutions on site and to understand the effectiveness of the selected NBS for snow meltwater infiltration.</li> <li>Assess residents' satisfaction with the re-designed area (after the NBS implementation).</li> <li>Understand the changes in accessibility in the area (after the NBS implementation), i.e. visitors' number/more vulnerable users (e.g. children).</li> </ul>				
<h3 style="text-align: center;">Stakeholders</h3> <table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top;"> <b>GOVERNMENT</b>                  City's departments:                  • Spatial Planning and Design                  • Urban Environment and Public Works                  • Urban Planning             </td> <td style="vertical-align: top;"> <b>UNIVERSITY</b>                  • Taltech             </td> <td style="vertical-align: top;"> <b>COMMUNITY</b>                  • Sauna users                  • Winter bathers                  • Pedestrians/visitors with a focus on children/ older adults                  • Car picnickers                  • Tourists             </td> <td style="vertical-align: top;"> <b>INDUSTRY</b>                  • Local restaurant owners                  • Harbour                  • Developers                  • Parking lot owner                  • Street cleaning company                  • Small businesses (arts and crafts)             </td> </tr> </table>	<b>GOVERNMENT</b> City's departments: • Spatial Planning and Design • Urban Environment and Public Works • Urban Planning	<b>UNIVERSITY</b> • Taltech	<b>COMMUNITY</b> • Sauna users • Winter bathers • Pedestrians/visitors with a focus on children/ older adults • Car picnickers • Tourists	<b>INDUSTRY</b> • Local restaurant owners • Harbour • Developers • Parking lot owner • Street cleaning company • Small businesses (arts and crafts)	<h3 style="text-align: center;">Project Strategies</h3>
<b>GOVERNMENT</b> City's departments: • Spatial Planning and Design • Urban Environment and Public Works • Urban Planning	<b>UNIVERSITY</b> • Taltech	<b>COMMUNITY</b> • Sauna users • Winter bathers • Pedestrians/visitors with a focus on children/ older adults • Car picnickers • Tourists	<b>INDUSTRY</b> • Local restaurant owners • Harbour • Developers • Parking lot owner • Street cleaning company • Small businesses (arts and crafts)		

 <p style="text-align: center;"><b>Cost Strategy</b></p> <p>Tallinn will be conducting all procurements based on the Tallinn procurement procedure. However, the city is <b>open to testing alternative investment and financing models</b> proposed within the project. The budget of the project was determined in the project proposal phase. The maintenance budget is funded by the City of Tallinn, specifically through the Urban Environment and Public Works Department (KeKo). Tallinn <b>aims to reduce maintenance needs and costs through the design</b> of nature-based solutions.</p>	 <p style="text-align: center;"><b>Planning Strategy</b></p> <p>The design will align with the Tallinn 2035 Development Strategy and the Tallinn Sustainable Energy and Climate Action Plan 2030. While a new city-wide masterplan is in progress, this project will specifically follow the <b>ongoing city centre masterplan and the existing detailed plans</b> for the site.</p>
 <p style="text-align: center;"><b>Plan of Use Strategy</b></p> <p><b>Maintenance budget comes from the city</b>, maintenance will most likely be carried out in collaboration Tallinn Urban Environment and Public Works Department (KEKO) and the Tallinn City Centre Administration. The project will <b>improve safety</b> by installing lighting and creating secure, accessible pathways into the area.</p>	 <p style="text-align: center;"><b>Inclusive Design Strategy</b></p> <p>The design will prioritise accessibility to accommodate diverse user needs. Tallinn has planned <b>stakeholder engagement in 2 phases</b>: in the Concept + Preliminary Design phase (ES) and after the presentation of the Detailed Design (PP). Additionally, the city will collaborate with university students, who will contribute by designing selected elements of the project.</p>
 <p style="text-align: center;"><b>Project Team</b></p> <p><b>Client Team</b> – Municipality (Tallinn Strategic Management Office)</p> <p><b>Design Team</b> – Design developed in collaboration with the procured designer, internal municipality designers and Taltech architecture students – the more technical NBS solutions will be designed by the procured design team. The smaller interventions will be done in co-creation between the city's internal design team and Taltech architecture students and the local community.</p> <p><b>Contractor Team</b> – Procured through public tendering process (the first procurement covering the design of all project parts, another procurement after the detailed design for construction, possibly a third procurement for lighting – depending on the budget).</p>	

# T6.1 Plan of Works

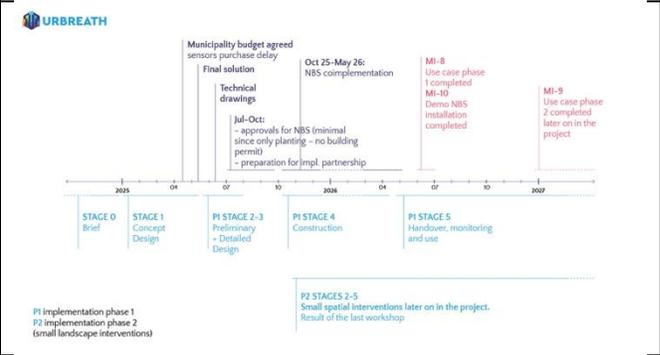
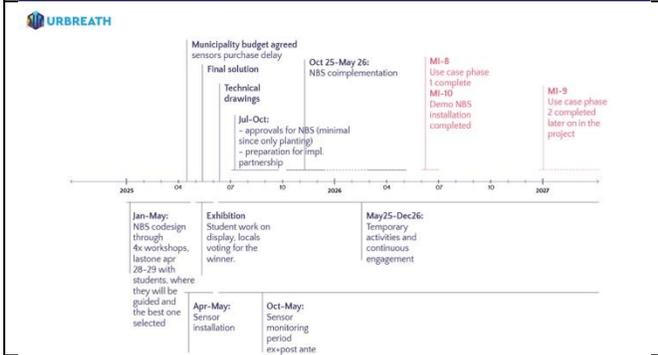
## Cluj-Napoca

May 22nd 2025 in Cluj

This project is co-funded by the European Union under grant agreement ID 10103075.

**SITE**

Iris Neighbourhood: Pilot sites  
Credits: Cluj-Napoca team



### Project Brief

### Aims

- **Implementing a multifunctional NBS** towards community needs that allows for **replication flexibility**.
- **Creating green public and private spaces**, including mixed-use and post-industrial areas, to enhance biodiversity, reduce pollution, and improve urban comfort.
- **Activating public space through community engagement**, enabling temporary uses, cultural events, and shared management of green areas.
- **Developing green-blue corridors and vegetated mobility routes** to strengthen ecological connectivity, manage flood risks, and mitigate urban heat.
- **Tackling pollution** caused by construction sites/car traffic.
- **Leveraging digital tools and environmental data**, including citizen input, pollution metrics, and heat island analyses, for participatory planning and long-term site monitoring.

### Potential Barriers

- **Regulatory hurdles** (related to the power lines, flooding risk, reserved areas for mobility in the masterplan)
- **Communication** within municipality, avoiding working in silos (due to lack of time)
- **Land use** - private ownership (water company)
- **Temporary discomfort** for locals
- Lack of state-of-the-art data and limited resources for **impact monitoring**.
- **Financial constraints** and predefined budget

### Use Case Scenarios

- Demonstrating the **value of green pockets** for multi-family housing areas.
- **Involving the community** in co-creation (i.e. tree selection and planting).
- **Integrating greening simulations** in the Local Digital Twin.
- Understanding the **changes (increase?) in shaded areas** (after the NBS implementation).
- Understanding **CO2 emissions reduction** (after the NBS implementation).

<p><b>URBREATH</b></p> <p style="text-align: center;">Stakeholders</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p><b>GOVERNMENT</b> City's departments:</p> <ul style="list-style-type: none"> <li>• European funds,</li> <li>• Urban Strategies,</li> <li>• Urban Ecology and Green Spaces,</li> <li>• Public Events and Citizen Information</li> </ul> <p>Civic Imagination and Innovation Center Cluj Metropolitan Area</p> </td> <td style="vertical-align: top;"> <p><b>UNIVERSITY</b></p> <ul style="list-style-type: none"> <li>• Technical University of Cluj-Napoca (Faculties of Architecture and Urban Planning)</li> <li>• UBB</li> <li>• USAMV</li> <li>• TaiTech</li> </ul> </td> <td style="vertical-align: top;"> <p><b>COMMUNITY</b></p> <ul style="list-style-type: none"> <li>• Residents</li> <li>• Cultural centre</li> <li>• Youth federation</li> <li>• Architect groups</li> <li>• Scena Urbana</li> <li>• Cycling tourism club</li> </ul> </td> <td style="vertical-align: top;"> <p><b>INDUSTRY</b></p> <ul style="list-style-type: none"> <li>• Delivery NGO</li> <li>• Transylvania IT-cluster</li> <li>• Industrial zone owners</li> <li>• Water company Somes SA</li> <li>• Electric Energy Distribution Romania.</li> </ul> </td> </tr> </table>	<p><b>GOVERNMENT</b> City's departments:</p> <ul style="list-style-type: none"> <li>• European funds,</li> <li>• Urban Strategies,</li> <li>• Urban Ecology and Green Spaces,</li> <li>• Public Events and Citizen Information</li> </ul> <p>Civic Imagination and Innovation Center Cluj Metropolitan Area</p>	<p><b>UNIVERSITY</b></p> <ul style="list-style-type: none"> <li>• Technical University of Cluj-Napoca (Faculties of Architecture and Urban Planning)</li> <li>• UBB</li> <li>• USAMV</li> <li>• TaiTech</li> </ul>	<p><b>COMMUNITY</b></p> <ul style="list-style-type: none"> <li>• Residents</li> <li>• Cultural centre</li> <li>• Youth federation</li> <li>• Architect groups</li> <li>• Scena Urbana</li> <li>• Cycling tourism club</li> </ul>	<p><b>INDUSTRY</b></p> <ul style="list-style-type: none"> <li>• Delivery NGO</li> <li>• Transylvania IT-cluster</li> <li>• Industrial zone owners</li> <li>• Water company Somes SA</li> <li>• Electric Energy Distribution Romania.</li> </ul>	<p><b>URBREATH</b></p> <p style="text-align: center;">Project Strategies</p>
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<p><b>URBREATH</b></p> <p style="text-align: center;">Cost Strategy</p> <p><b>Budget:</b></p> <ul style="list-style-type: none"> <li>• 69 000 € (indirect cost inc. temporary activities, external services, sensors)</li> <li>• 60 000 € for subcontracting</li> <li>• 12 000€ for equipment</li> <li>• Support from the Green Space Department</li> </ul> <p><b>Extra funding possibilities:</b></p> <ul style="list-style-type: none"> <li>• Mobile app for adopting a tree</li> <li>• Private companies working locally adopting a green space</li> </ul>	<p><b>URBREATH</b></p> <p style="text-align: center;">Planning Strategy</p> <p>Cluj-Napoca's planning strategy must respond to a range of environmental and infrastructural constraints. <b>Power lines</b> running through the site and <b>access corridors maintained by the water company</b> limit areas available for intervention. Although the <b>masterplan</b> for the Somes River is still in development and not yet public, a technical river plan informs early design decisions. Biodiversity considerations, such as the protection of a <b>local beaver population</b>, also guide the planning process. As the Iris area transitions <b>from industrial use to new development</b>, the project aligns with future urban change while ensuring resilience in a flood-prone landscape.</p>				
<p><b>URBREATH</b></p> <p style="text-align: center;">Plan of Use Strategy</p> <p>The aim is to ensure <b>minimal or no maintenance</b> wherever possible. The city's <b>Green Space Department</b> will be responsible for maintaining the planted areas. One idea under consideration is the development of a <b>mobile app</b> that allows individuals to care for the tree they planted. Private companies working in the neighbourhood might also be involved in the upkeep of the area (adopt a green space).</p>	<p><b>URBREATH</b></p> <p style="text-align: center;">Inclusive Design Strategy</p> <p>The areas are currently inaccessible for the public. This project aims to <b>return the space to the people while establishing a connection to the riverbank</b>. Rather than introducing hard interventions, the sites will be made accessible via the existing pavement.</p>				
<p><b>URBREATH</b></p> <p style="text-align: center;">Project Team</p> <p><b>Students</b> – concept idea  <b>Urbasofia</b> landscape planner – further design  <b>Consulting architect</b> – for approvals, if necessary  <b>Coimplementing</b> – planting at least 300 trees &amp; other vegetation together with the locals  <b>Green Space Department</b> – maintenance</p>					

## T6.1 Plan of Works

Madrid  
April 22nd 2025

This project is co-funded by the European Union under grant agreement 101030976

PHASE 1 Design of District Strategy 2024-2025	PHASE 2 Project Development May 2025 - Dec 2026	PHASE 3 Implementation of Actions (San Cristobal) Sept 2025 - Dec 2026	MI-8 Use case phase 1 complete MI-10 Demo NBS installation completed	MI-9 Use case phase 2 completed later on in the project
Diagnosis Vision for the future Thematic axes Areas of action Non-Spatial Performances Spatial actions	Development and implementation of space and non-space projects	Coordination, implementation and Commissioning		
Site 1 Implementation May- Dec 2025 Site 1 demolition has started		Site 2 Implementation Jan - June 2026 Site 2 works expected to start in 2026		

PHASE 1 Design of District Strategy 2024-2025	PHASE 2 Project Development May 2025 - Dec 2026	PHASE 3 Implementation of Actions (San Cristobal) Sept 2025 - Dec 2026	MI-8 Use case phase 1 complete MI-10 Demo NBS installation completed	MI-9 Use case phase 2 completed later on in the project
Diagnosis Vision for the future Thematic axes Areas of action Non-Spatial Performances Spatial actions	Development and implementation of space and non-space projects	Coordination, implementation and Commissioning		
STAGE 0 Brief	S1 STAGE 2 Preliminary Design S2 STAGE 2 Preliminary Design	S1 STAGE 3 Detailed Design S2 STAGE 3 Detailed Design	S1 STAGE 4 Construction S2 STAGE 4 Construction	S1 STAGE 5 Handover and Monitoring S2 STAGE 5 Handover and Monitoring

S1 - Site 1 (Southern part of the Pilot)  
S2 - Site 2 (Northern part of the Pilot)

### Project Brief

### Aims

- Improving environmental quality through NBS
- Rehabilitating public spaces with a focus on accessibility, thermal comfort, and gender-sensitive design.
- Strengthening local small businesses as a key driver of social cohesion.
- Creating safe, welcoming school routes that extend the logic of school environments into the broader urban fabric.

### Potential Barriers

- **Lack of coordination** between policies and interventions of each municipal department
- **Land use** – activation of land with unclear ownership from municipality's side
- **Maintenance** – contracts not including relevant maintenance practices. NBS not always being more expensive or labour intensive, but what is required, needs to be reflected in the contract.
- **Impact monitoring** – hard to institutionalise monitoring strategies of single projects into wider everyday practice. Need to focus and simplify information collected and make it action and learning oriented.

### Use Case Scenarios

- Centralise past/ongoing studies, plans, and interventions for the Villaverde district.
- Organise training/codeign sessions. Centralise existing info about potential NBS Villaverde
- LDT-visualisation of datasets & simulations for better insights of district officials.
- Measure the success level of collaboration initiatives.

 <p style="text-align: center;"><b>Stakeholders</b></p> <p><b>GOVERNMENT</b></p> <ul style="list-style-type: none"> <li>• City's office</li> <li>• Sustainability and Environmental Control,</li> <li>• Water and Green Areas,</li> <li>• Strategic Planning,</li> <li>• Mobility and Infrastructure Planning,</li> <li>• Urban Regeneration,</li> <li>• Innovation,</li> <li>• General Urban Development Plan</li> </ul> <p><b>UNIVERSITY</b></p> <ul style="list-style-type: none"> <li>• Universidad Politecnica de Madrid</li> <li>• TalTech</li> </ul> <p><b>COMMUNITY</b></p> <ul style="list-style-type: none"> <li>• Residents</li> <li>• San Cristobal Community Board</li> <li>• "Navas de Tolosa" and "Sagunto" public schools in Villaverde</li> <li>• NGO "Education, Culture and Solidarity"<sup>5</sup></li> <li>• Environmental groups</li> <li>• Continuing Care Program (service support in the schools of San Cristobal)</li> </ul> <p><b>INDUSTRY</b></p> <ul style="list-style-type: none"> <li>• NBS implementors</li> <li>• Potential investors.</li> </ul>	 <p style="text-align: center;"><b>Project Strategies</b></p>
 <p style="text-align: center;"><b>Cost Strategy</b></p> <p>Madrid will prioritise public financing. Future budgetary decisions will consider the needs of the pilot project to ensure sustained support. To maximise resources, Madrid will seek to leverage funding across different municipal departments to navigate restrictions of different support systems. The municipality could provide extra support for the disadvantaged district.</p> <p>At the moment, private financing is difficult to be implemented within the municipality, however, there is some experience with Public-Private-Partnership.</p> <p>In long term vision, there could be an opportunity beyond the scope of the immediate URBREATH project, to explore beyond public funding.</p>	 <p style="text-align: center;"><b>Planning Strategy</b></p> <p>Madrid's planning strategy centers on the <b>Villaverde Opportunity Area</b>, where an overarching opportunity mapping exercise guides both the pilot and replication areas. By investigating the district's multiple layers (like commerce, safety, urban nature, resilience, mobility, and accessibility), the city will develop a common strategic framework that can adapt to the specific needs of each site. The district-wide strategy was defined through an inter-departmental working group, supported by light public participation. Through community inclusion, this was then developed into specific design.</p> <p>Specialised consultants are now being included to create detail design. Interventions will align with existing <b>Spatial Planning</b> regulations, including requirements such as the green factor, and will ensure full compliance with the city's <b>General Plan</b> to coordinate actions across departments.</p> <p>In collaboration with <b>T6.2</b> Madrid would like to investigate how to further strengthen the project's impact through initiatives like Madrid+Natural.</p>
 <p style="text-align: center;"><b>Plan of Use Strategy</b></p> <p>Madrid's plan of use strategy will ensure long-term quality and maintenance through a publicly managed, privately implemented model. Maintenance services will be procured via public tender.</p> <p>The selection of urban furniture will be closely coordinated within the municipality, ensuring that all new elements meet durability and maintenance requirements before installation.</p>	 <p style="text-align: center;"><b>Inclusive Design Strategy</b></p> <p>Madrid's inclusive design strategy is rooted in the challenges and opportunities of working in Villaverde, one of the city's most vulnerable districts in terms of climate, economic, and social indicators. By linking URBREATH with initiatives like LIFE-PACT, the city aims to leverage its local ecosystem to generate broader and more sustained impact.</p> <p>Here, inclusive design goes beyond physical accessibility: through deep social inclusion, the project seeks to meaningfully respond to the needs of diverse and often marginalized communities. Physical accessibility will be ensured through compliance with regulations, while the Department of Urban Regeneration's expertise in gender-sensitive design will guide the creation of more equitable public spaces.</p> <p>Through this approach, Madrid seeks not only to improve Villaverde but to learn how to scale effective climate adaptation and social inclusion strategies across the city.</p>
 <p style="text-align: center;"><b>Project Team</b></p> <p><b>Client Team</b> – Municipality (district, Department of Urban Regeneration and inter-departmental working group)</p> <p><b>Design Team</b> – Different design teams for pilot and replication area. The team is getting input from inter-departmental working team, as well as the Department of Urban Regeneration</p> <p><b>Contractor Team</b> – Will be procured through public tendering process</p>	