



**URBAN GreenUP**

**D2.6: Report on implementation progresses in  
Valladolid**

**WP 2 , T 2.8**

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## 0 Executive summary

Valladolid is a “front-runner city” in the URBAN GreenUP project ([www.urbangreenup.eu](http://www.urbangreenup.eu)) whose aim is to act as a living laboratory that demonstrates the economic, social and environmental impacts of fully functional green infrastructure, promoting citizen awareness and participation, and fostering of ecological understanding among the community.

Valladolid works to validate and demonstrate the effectiveness of the URBAN GreenUP methodology. The project foresees 42 Nature-Based solutions (NBS), 36 technical and 6 non-technical interventions, around the city. These interventions have been grouped according to how they are being procured and implemented.

This report describes the development of the implementation of the interventions and the monitoring elements, according to the technical and economic specifications of the NBS developed by the URBAN GreenUP project WP2 demo partners.

The report describes the development of the tendering procedures, the public processes and civil works, describing not only the technical issues, but also experiences that have occurred. The implementation process is defined as a learning process that adapts to the circumstances, problems and barriers, and takes advantage of the different opportunities for co-creation and co-development to exploit the maximum potential of the process and resources available.

This deliverable shows the different stages for the successful implementation of the demonstrative interventions in Valladolid, technical and non technical, and describes the work done to date and the first milestones achieved.

The following table summarizes the implementation status of the technical interventions.

Implementation phase	% delivery	Procurement group (PPP)	Abstract
Cancelled	0%	Floodable park	River Duero Basin do not recommended constructing the Floodable park in the selected plot
Under review	10%	Sustainable park	River Duero Basin did not report favorably to build the NWTP at the planned location in the Las Contiendas park. The team is currently evaluating an alternative at another location (next to the storm tank on Santander Avenue)
Project phase	20%	Cycle lane	The cycle lane stretch will be on Padre José Acosta Avenue. The project will be subcontracted by public tender, before any construction work.
	20%-30%	Resting areas	The technical definition is made. Final locations will be included in the subcontracted project of the green corridor.
	30%-40%	Pollinator's modules	The technical definition is made. Final locations will be included in the subcontracted project of the green corridor.
	30%-40%	Urban carbon sink	The technical definition is made. The project will be subcontracted by public tender, before any



			construction work.
	40%-50%	Smart soils	A technical-economic report serves as a basis to tender the supply purchase for all NBS.
Tendering process about to start	<50%	Green noise barriers	Technical project in process. There are some doubts about the location.
	<50%	Urban orchard	A technical-economic report serves as a basis to tender the supply purchase for the two municipal orchards.
	<50%	Stormwater management systems	The scope is being expanded to include budget released from the Floodable park.
	< 50%	Bio-filter	A technical-economic report serves as a basis to tender the construction.
	60%	Electro wetland	LEITAT has already submitted to the City Council the Construction Project Report, which has been elaborated by a subcontracted company. Valladolid City Council is defining the legal procedures for the final approval and permits.
Tendering process on going	65%	Green roof	Project completed and public procurement process in progress.
	65%	Green canopies	Project completed and public procurement process in progress.
	70%	Trees	The purchase of 1/3 of the trees has already been executed. Plantation pending.
	70%	Green façade	Tendering process opened up, pending receipt of offers. Submission of quotes in progress (the deadline is 10th of December 2019).
Construction phase	80%	Green infrastructure	Works have started. Completion of works expected in January 2020.

Table 0.1: Technical interventions implementation status (November 2019)

And the following table summarizes the implementation status of the non-technical interventions of the URBAN GreenUP project in Valladolid.

% delivery	Non-technical activity	Abstract
80%	VAc37- Engagement Portal for citizen	There is a webspace in the Innovation Agency website for the URBAN GrenUp project in Valladolid. Interaction with stakeholders can be improved.
80%	VAc38- Sponsoring activities	Sponsor a "Nature-Base Solution" initiative is ongoing, but it will improve with other designed activities after the NBS implementation (pollinator's modules, trees, etc.)
80%	VAc39- Promotion of ecological reasoning and intelligent	The members attend all the events to which they are invited to discuss the URBAN GreenUP project. This scenario will continue at least until the end of the project. Local engagement activities can be improved.



90%	VAc40- Single desk for RUP deployment	Single desk is always open to receive any comment, suggestion, aid application, from citizens and stakeholders. Both personally and electronic media or telephone.
60%	VAc41- Support to citizen project of NBS	Many projects related to NBS already make synergies with URBAN GreenUP in Valladolid. The creation of a NBS database to Valladolid is planned but it is not executed.
60%	VAc42- City mentoring strategy (Staff Exchange activities)	The Mentoring strategy already many activities with stakeholders with interest in the UGU Project. The strategy can be improved and extended.

Table 0.2: Non technical interventions implementation status (November 2019)



## 1 Introduction





### 1.1 Purpose and Target Group

The purpose of this deliverable is to show the development of the interventions and to demonstrate the implementation, installation and monitoring of the solutions. Furthermore, the development and implementation of the actions involves a learning process for all the stakeholders to be used in the definition of a methodology to be replicated in other areas and scenarios. This report identifies the barriers, challenges and opportunities affecting the development and the final results, and aims to address these as clearly and as pragmatically as possible.

### 1.2 Contribution of Partners

The URBAN GreenUP project is being delivered by a wide-ranging consortium of partners. Valladolid is a “front-runner city” as one the main partners in the project, assuming key responsibility for achieving the required deliverables. The city of Valladolid is supported by several local partners, in order to create a group of stakeholders to lead the city transition.

CARTIF Foundation is the leader of the Task 2.8: *Supervision of NBS implantation and civil works*. In addition, the technical and economical design of the interventions of Valladolid Demonstration in the URBAN GreenUP project is developed by a team group working together and coordinated by Valladolid City Council: Valladolid Demonstration team.

Partner	Expertise	Interventions in Valladolid Demo
 Ayuntamiento de Valladolid	Valladolid City Council is a local government public entity from Spain. Demo Valladolid Coordinator.	<ul style="list-style-type: none"> <li>- New green cycle lane and re-naturing existing bike lanes</li> <li>- Cycle-pedestrian green paths. Green Resting areas.</li> <li>- Arboreal interventions: Planting trees, tree shady places.</li> <li>- Urban Carbon Sink.</li> <li>- Green Parking Pavements.</li> <li>- Urban orchards. Small-scale urban livestock. Urban Farming Educational activities.</li> <li>- Educational paths.</li> <li>- Non-technical activities: Engagement Portal for citizen, Sponsoring activities, Promotion of ecological reasoning and intelligent, Single desk for RUP deployment, Support to citizen project of NBS, City mentoring strategy.</li> </ul>
 Fundación CARTIF	Applied Research Centre in terms of R&D and technology transfer activities.	<ul style="list-style-type: none"> <li>- Urban garden bio-filter.</li> <li>- Natural &amp; Compacted pollinator's modules.</li> <li>- Smarts soils as substrate.</li> <li>- Community composting.</li> </ul>
	Singulargreen SL Company specialized in landscape architecture.	<ul style="list-style-type: none"> <li>- Green roof.</li> <li>- Green shady structures.</li> <li>- Green covering shelter.</li> <li>- Green façade.</li> <li>- Green noise barriers.</li> <li>- Vertical mobile gardens.</li> </ul>
 Confederación Hidrográfica del Duero	Duero River Basin Authority is a public body under the Ministry of Agriculture, Food and Environment of Spain, authority for Duero Basin water management.	<ul style="list-style-type: none"> <li>- Floodable Park.</li> </ul>



 Fundación Centro de las Nuevas Tecnologías del Agua – CENTA	Non-profit research institution in terms of R&D&I in water management.	<ul style="list-style-type: none"> <li>- Natural wastewater treatment plant (NWTP).</li> <li>- Drainage urban systems (SUDs)</li> <li>- Rain gardens.</li> <li>- Green filter area.</li> </ul>
 Acondicionamiento Tarrasense Asociación - LEITAT	Research Centre specialized in production technologies.	<ul style="list-style-type: none"> <li>- Electro wetland.</li> </ul>

Table 1.1: Partners of Demo Valladolid interventions in the URBAN GreenUP Consortium

### 1.3 Relation to Other Activities in Project

This Deliverable *D2.6 Report on implementation progresses in Valladolid* is a twin report for the three Demonstrative Cities: Valladolid, Liverpool and Izmir. So WP3-Liverpool and WP4-Izmir are working in parallel to WP2-Valladolid. To strengthen this collaboration, the transversal activity common to the three WPs will be reinforced, to share experiences of the project's implementation progress.

Valladolid's implementation is closely aligned with WP1 (to support the development of the re-naturing strategy and serve as a validation test bed). The activities included in WP5 Monitoring and Evaluation will analyse front runner cities demonstration projects and will be considered together as part of an overall evaluation.

### 1.4 Document structure

The structure of this document aims to show in a clear and orderly way the implementation process of the different NBS in the city, as defined in the description of task 2.8 *Supervision of NBS implantation and civil works* of the Grant Agreement.

Thus, the document is structured in two main chapters that are *Technical interventions* and *Non-technical interventions*.

#### 1.4.1 Technical interventions

In order to show clearly the implementation process of the different NBS in the city, the interventions are grouped according to the different PPP (Public Procurement Process) defined initially in the deliverable *D2.5 Tender documents of Valladolid Demo*. Some of these PPPs have been modified since the delivery of the D2.5 to adapt to new circumstances. The following figures show respectively the PPPs defined in D2.5 and those currently foreseen.



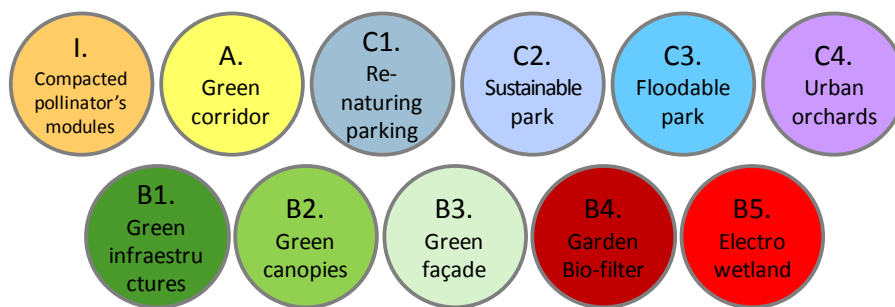


Figure 1.1: Original procurement packages as outlined in D2.5 *Tender documents of Valladolid demo*

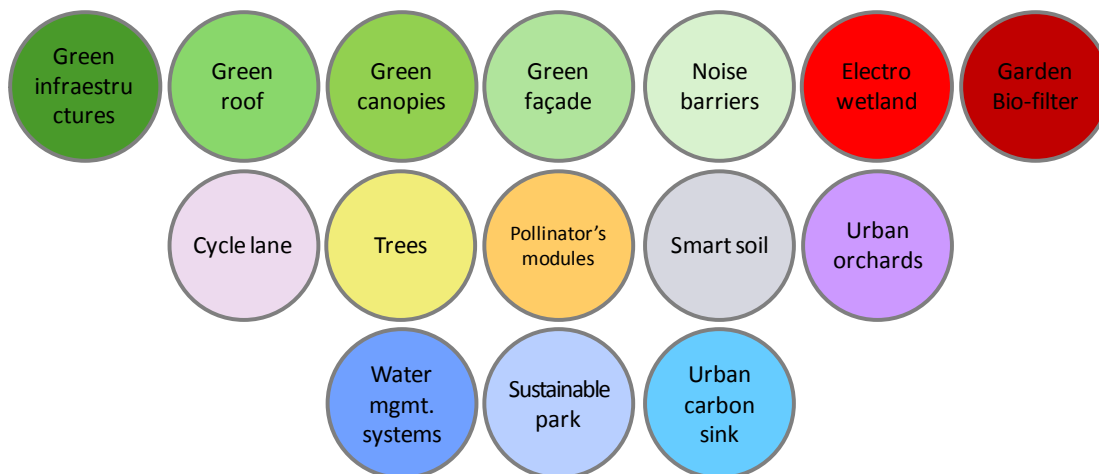


Figure 1.2: Revised procurement packages based on further project development by Technical NBS groups

As Figures 1.1 and 1.2 show, there have been several changes in the tendering structure planned to Valladolid demonstration. The main changes are described below.



Figure 1.3: Revised procurement packages for green infrastructure

There are two new PPPs corresponding to two NBS, which were previously included in other PPP groups, which now will be tendered individually:

- Green Roof: in the beginning, the intervention on the roof of the Campillo market was going to be the only action to be carried out on the building. However, this intervention was seen as an opportunity to retrofit the entire roof and solve the existing problems of water ingress. Thus, NBS will be part of a project that integrates other actions outside the URBAN GreenUP project. In addition, the building belongs to another area of the City Council that will contract the entire restoration of the roof, therefore this intervention has had to be separated from the initial PPP within GreenUP.

- Green Noise Barriers: different acoustic studies carried out show that the potential of this type of solution is not fully exploited for the location and the technical solution developed so far and described in *D2.3 Technical specifications of Valladolid Demo*. Therefore, these aspects

are being redefined and therefore have not been delivered as expected. It has been decided to separate the process for each work NBS and not delay the execution of the other NBS that previously belonged to the same PPP group.

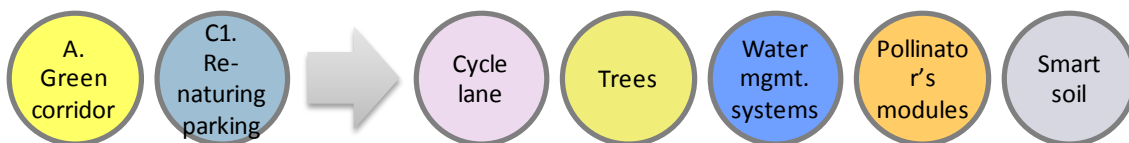


Figure 1.4: Revised procurement packages for the green corridor and re-naturing parking

- Cycle lane, trees and storm water management systems: green corridor and re-naturing parking groups have been restructured and substituted by these three tendering groups according to the nature of the works to contract (mobility, “green”, and “blue”).
- Additionally, pollinator’s modules (compact and natural ones) and the Smart soil as substrate will be tendered individually. Both NBS will be applied to different interventions in different locations. For example, the pollinator’s modules will be implemented in the urban orchards, or in the urban carbon sink. The smart soil will be used as substrate for the trees or the green resting areas.

The purpose of these changes is to optimize the public processes and the improvement of the results.

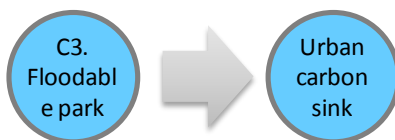


Figure 1.5: New concept for the floodable park: urban carbon sink park

- The floodable park (VAc11) is not being implemented in Valladolid. But the other interventions from SubDemo C3 remain. Therefore, the new concept of the floodable park has been substituted by an urban carbon sink park, with an educational path, one green resting area and pollinator’s modules.



The electro wetland is the only action that will not be executed through a public tender process, as LEITAT partner is responsible for its construction and subcontracting the works.



The tendering processes for the Urban garden biofilter (VAc30), Urban orchards interventions (VAc31, VAc32, VAc33, VAc34) and the Sustainable park (VAc13, VAc34, VAc12) do not change.

The following table summarizes the different interventions that are part of each PPP to facilitate the search of a specific NBS.

PPP Group	Code	Intervention	Leader
Cycle lane	VAc1	New green cycle lane and re-naturing existing bike lanes	VAL
	VAc 15	Cycle-pedestrian green paths	VAL
Trees	VAc 2	Planting 1,000 trees	VAL
	VAc 3	Tree shady places	VAL
	VAc 4	Shade and cooling trees	VAL
	VAc5	Re-naturing parking trees	VAL
Resting areas	VAc 6	Installation of 3 Green Resting areas	VAL
Stormwater management systems	VAc 8	SUDs for green bike lane	CEN
	VAc9	SUDs for re-naturing parking	CEN
	VAc10	Rain gardens	CEN
	VAc14	Green Parking Pavements	VAL
Green infrastructure	VAc24	Green Vertical mobile garden	SGR
	VAc27	Green Covering Shelter	SGR
Green Roof	VAc28	Green Roof	SGR
Green canopies	VAc29	Green Shady Structures	SGR
Green façade	VAc25	Green façade	SGR
Green noise barriers	VAc22	Green noise barriers	SGR
	VAc23	Green noise barriers	SGR
Bio-Filter	VAc30	Urban garden bio-filter	CAR
Electro wetland	VAc26	Electro-wetland	LEI
Sustainable park	VAc13	Natural Wastewater Treatment Plant	CEN
	VAc34	Educational path in NWTP area	VAL
	VAc12	Green filter area	CEN
Urban carbon sink	<del>VAc11</del>	<del>Floodable Park</del>	<del>CHD</del>
	VAc7	Urban Carbon Sink	VAL
	VAc35	Educational path in floodable park area	VAL
Urban orchards	VAc31	Urban orchard	VAL
	VAc32	Community composting	CAR
	VAc33	Small-scale urban livestock	VAL
	VAc36	Urban Farming Educational activities	VAL
Pollinator's mod	VAc19	Natural pollinator's modules	CAR
	VAc20	Compacted Pollinator's modules	CAR
	VAc21	Natural pollinator's modules	CAR
Smart soil	VAc16	Smart soils as substrate	CAR
	VAc17	Smart soils as substrate	CAR
	VAc18	Smart soils as substrate	CAR

Table 1.2: Procurement processes for NBS implementation in Valladolid.

The technical and economic specifications of each intervention are part of the deliverable D2.3 *Technical specifications of Valladolid Demo* and included within that report. Only in cases





where the implementation process shows substantial changes, they are reflected in this deliverable. Finally, D2.7 *Final report about implementation and commissioning of NBS in Valladolid* (February 2020) will show a summary of the technical and economic specifications executed for each intervention.

For the definition of the implementation process of each PPP, the objectives of WP2 and its structure have been taken into account, as well as the relationship with the rest of WP. Every PPP paragraph is divided into several sections:

- Tendering process: the scope of the different milestones involved in each stage of the process (preparation and planning, publication and transparency, submission of tenders; evaluation and award);
- Execution of works: progress of the construction of the works with photographic support of the different stages;
- Deviations: exposition of the relevant modifications in relation with what was delivered in *D2.3 Technical specifications of Valladolid Demo* (location, technical specifications, budget and timelines). This section will be included in the next deliverable versions, when the more data will be available due to a higher progress state of execution
- Highlights: interesting experiences and lessons learned in the process that stand out for their potential to be used in the establishment and validation of a renaturation methodology, as well as being part of a guide of good practices; and
- Implementation progress status: reflects the percentage of progress of the intervention, from the definition of its location and technical design to the work completed and in operation, according to the criteria defined in the following table.

Percentage delivery	Technical interventions
10%	NBS locations under review
20%	NBS location agreed
30%	Detailed design and specifications are agreed and underway
40%	Economical specifications are calculated
50%	Technical project finished
60%	Procurement of proposed works is underway
70%	Tenders have been let
80%	Works have started on site
90%	Good progress with on-site delivery
100%	Works fully completed

Table 1.3: Status criteria for Valladolid Demonstration of technical interventions.

#### 1.4.2 Non-technical interventions

For the definition of the implementation process of non-technical actions, the objectives of WP2 and its structure have been taken into account, as well as the relationship with the rest of WP. The non-technical interventions are developed by Valladolid City Council. For some actions it is foreseen the outsourcing.



Each section is divided into the following ones:

- Execution of activities: progress of the development of the activities with photographic support of the different stages;
- Deviations: exposition of the relevant modifications in relation to that presented in the D2.3 *Technical specifications of Valladolid Demo* (technical and budget). This section will be included in the next version of this deliverable, when more data will be available due to a higher progress state of execution;
- Highlights: notable project experiences and lessons learned from the process that stand out for their potential to be used in the establishment and validation of a renaturation methodology as well as being part of a guide of good practices; and
- Implementation progress status: reflects the percentage of state of progress of the intervention, from the definition of its location and technical design to the work completed and in operation, according to the criteria defined in the following table;

Percentage delivery	Non-technical interventions
10%	Non-technical interventions described
20%	Locations/approach proposed
30%	Preliminary site visits/assessments made
40%	Engagement with stakeholders, partners, and wider community started
50%	Interventions mapped in detail/ Regular engagement with stakeholders
60%	Stakeholder partnership established
70%	Interventions about to commence
80%	Intervention has begun/ Stakeholders actively involved
90%	Good progress with delivering the Intervention/Stakeholders benefitting
100%	Intervention completed

Table 1.4: Status criteria for Valladolid Demonstration of non-technical interventions.

### 1.4.3 Monitoring systems

The scheme for the impact assessment of the NBS to be implemented is based on a set of Key Performance Indicators (KPIs) framed in a group of city challenges<sup>2</sup>. Each NBS is monitored by one or several KPIs according its expected impacts. Some of these indicators are associated with in-situ monitoring of certain parameters, using instrumentation. For example, KPI code 'CH01-05' is monitored by using in-situ temperature and relative humidity sensors.

The monitoring of other KPIs gets information in different ways, for example questionnaires for NBS users, apps or information collected from public sources (f.e. CH10-03).

We identify the following types of KPI according to its data source:

- Calculated by statistical data currently existing
- Calculated by statistical data measured in URBAN GreenUP

<sup>2</sup> More information on D1.2 and D2.4.







	Sensor installed by URBAN GreenUP
	Estimated with a model, software
	GIS analysis
	Mobile App (URBAN GreenUP Valladolid)

Table 1.5: Data source classification for KPIs.

In order to know the scope of the monitoring required or the identification and collecting the data for KPIs calculation, for each NBS has included a table with the associated KPIs, the progress of the information collection including the progress of the deployment of the monitoring devices, if needed.

We classify the KPIs that get data obtained from instrumentation (sensors, meters), from KPIs calculated, estimated or modelled. On the one hand, the first group is measured with the following criteria.

Percentage delivery	Monitoring systems for Technical interventions (instrumentation)
20%	KPIs defined for the NBS intervention
40%	Selection of the monitoring systems, locations and permits for installation management
60%	Monitoring systems acquisition
80%	Installation of the monitoring systems
100%	Test period concluded and validation

Table 1.6: Status criteria for monitoring systems (instrumentation)

On the other hand, KPIs calculated with data from other sources (questionnaires, apps, forms, etc.) are measured with the following criteria.

Percentage delivery	Data collection systems for NBS interventions (other data sources)
20%	KPIs defined for the NBS intervention
40%	Identification of information sources, locations and permits for acquisition management if needed
60%	Preparation of questionnaires, forms or tools to collect information
80%	Start data collection
100%	Tests period concluded and validation

Table 1.7: Status criteria for other monitoring systems (data collection)

Additionally, the period for baseline data collection and the percentage of this time covered are indicated.

Period for baseline data collection	Percentage covered
XX months	YY%

Table 1.8: Period for baseline data collection and status.



## 2 Technical interventions

### 2.1 Cycle lane

A green corridor will connect the city from West (Football Stadium) to East (Urban carbon sink). The green corridor will include the path of a cycling lane, currently existing and planned, sustainable drainage systems (see section 2.4), planting trees (see section 2.2), three resting areas (see section 2.3), natural pollinator modules (see section 2.15), and, when possible, smart soils as substrate (see section 2.16).

This tendering group includes the new cycling lane and cycle-pedestrian green paths.

Cycle lane	VAc1	New green cycle lane and re-naturing existing bike lanes
	VAc15	Cycle-pedestrian green paths

#### 2.1.1 Tendering process

##### *Preparation and planning*

Technical and economic specifications were already defined, but it is necessary to adapt them to the new urban conditions: new pedestrian areas, direction of traffic changes in some streets and new green areas. The new design and location of interventions are in the process of being re-defined.

Being a set of cross-cutting and multiple nature interventions, Valladolid City Council has determined that it is essential to subcontract a construction project (P) that integrates all the elements in coordination, so that the project is not only assumed by one area. The Innovation Agency coordinates the subcontracting project.

So in order to carry out this work, the subcontracting of the construction project will be carried out shortly, which will allow the construction of some NBS in an integrated manner that will constitute a global green corridor.

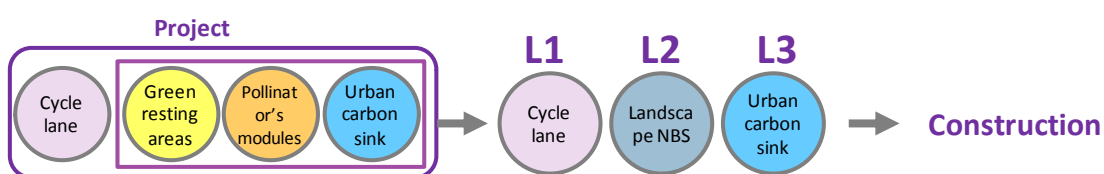


Figure 2.1: Implementation process for some Valladolid City Council interventions

The cycle lane stretch executed by the URBAN GreenUP project will be on Padre José Acosta Avenue. This has been agreed with all the areas involved.

##### *Publication and transparency*

The tendering process for the project contract will be launched before the end of 2019. It will be a minor service contract (less than 15.000 €).

### 2.1.2 Execution of works

Implementation works have not been started. The execution of works is expected to be started over the year 2020.

### 2.1.3 Deviations

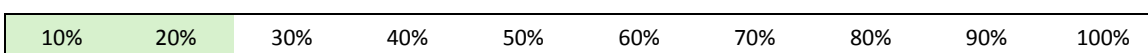
There have not been deviations in the scope and technical-economic description of the intervention. It is foreseeable a delay in the implementation, taking next Spring 2020 as horizon.

### 2.1.4 Highlights

This group of interventions has a great impact on the urban structure of the city. They include aspects of mobility, urbanism and parks and gardens, so all the areas involved in the city council have to work together. Such decisions are taken at the political level, so its execution can be take time and easily be delayed.

The level of public interest (and timeframes concerned) allows the opportunity to be able to develop some co-creation activities with the citizens. The contest “Re-naturing your City 2020”, will be an opportunity for citizens to prepare, discuss and present their ideas about this corridor. The most coherent and best-developed project will receive an award, and all the proposals received will be able to contribute ideas and inspire the design of the green corridor.

### 2.1.5 Implementation progress status



This group of interventions are in a first step before the construction works. It is the subcontracting of the construction project. The progress percentage of this initial public tendering process is 50%, as we are finishing preparing the descriptive technical report of the minor service contract (P).

### 2.1.6 Monitoring

KPI	NBS	Type of information collection system	Status of development				
CH04-02	VAc1, VAc15	GIS data modelling	20%	40%	60%	80%	100%
CH04-03	VAc1, VAc15	GIS data modelling	20%	40%	60%	80%	100%
CH04-04	VAc1, VAc15	APP and Statistical data	20%	40%	60%	80%	100%
CH04-11	VAc1	GIS data modelling	20%	40%	60%	80%	100%
CH04-13	VAc1, VAc15	APP URBAN GreenUP	20%	40%	60%	80%	100%
CH05-07	VAc1, VAc15	Formula and local data	20%	40%	60%	80%	100%
CH09-03	VAc1, VAc15	APP and Statistical data	20%	40%	60%	80%	100%

Table 2.1: KPIs and data collection systems identification and status: Cycle lane.

KPI	KPI	Period for baseline data collection	Percentage covered
CH04-02	GREEN SPACE DISTRIBUTION (km cycle lane/capita)	24 months	0%



<b>CH04-03</b>	GREEN SPACE ACCESSIBILITY	24 months	0%
<b>CH04-04</b>	RECREATIONAL VALUE	24 months	0%
<b>CH04-11</b>	GREEN INFRASTRUCTURE CONNECTIVITY	12 months	0%
<b>CH04-13</b>	CONNECTIVITY PERCEPTION	24 months	0%
<b>CH05-07</b>	AIR QUALITY MONETARY VALUES	6 months	0%
<b>CH09-03</b>	CITIZEN PERCEPTION	24 months	0%

Table 2.2: Baseline period and percentage covered: Cycle lane.

## 2.2 Trees

Planting trees will be deployed in different areas of Valladolid, in Sub-Demos A, B and C. Likewise, trees will be joined with green resting areas (see *section 2.3*) and natural pollinators modules (see *section 2.15*), as well as Smart soils as substrate, that will be used on the trees (see *section 2.16*).

Trees	VAc2	Planting 1,000 trees	A.- Green corridor
	VAc3	Tree shady places (500 trees)	A.- Green corridor
	VAc4	Shade and cooling trees (600 trees)	B.- City center
	VAc5	Re-naturing parking trees (250 trees)	C.- Football Std parking

### 2.2.1 Tendering process

#### *Preparation and planning*

We celebrate several meetings with the Parks and Gardens Service and Public Infrastructures Service of Valladolid City Council in order to coordinate the selection of the locations and the tree species suitable to Valladolid, to be included in the definition of the technical specifications of the contract.

There is a “Framework Agreement” for the supply of materials for Valladolid City Council. This facilitates the contract process for the trees supply. Four nurseries supply vegetation to the City Council, under this framework agreement. Their inclusion on the framework reduces the time and simplifies the procurement procedures.

There have been selected 34 tree species suitable for the URBAN Green Up’s project needs, such as shade trees, ornamental and resistant to pollution (*Ailanthus altissima*, *Cedrus*, *Acer*, *Populus* or *Pinus*).

#### *Publication and transparency*

On the 20<sup>th</sup> of November was launched the first tendering process to buy trees from the 4 nurseries under the supply framework agreement. Maximum contract value is 30.000 € (VAT included). It is expected to get approximately 600 trees.

#### *Submission of tenders, opening and selection*



Deadline for the submission of tenders is 27<sup>th</sup> November. By date, there have been received three offers.

#### *Evaluation and award*

We are currently in the evaluation process.



## 2.2.2 Execution of works

The Parks and Gardens Service of Valladolid City Council will plant the trees. The first 600 trees will be planted during November 2019-March 2020.

## 2.2.3 Deviations

The City Council will plant approximately the third part of the trees committed in the URBAN GreenUP project by March 2020. We found many difficulty planting trees in the city center area. New trees will reinforce current green areas along the surroundings of the green corridor.

## 2.2.4 Highlights

The URBAN GreenUP project budget considered a unitary cost for each tree of 50 €/u. The trees usually planted by Valladolid City Council cost on average 90 €/u. The purchase characteristics of the trees have been lowered to adapt the price to the project budget to 55-70 €/u.

## 2.2.5 Implementation progress status



This percentage corresponds to the current purchase process (1/3 of the trees)

## 2.2.6 Monitoring

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH01-01	VAc2, VAc3, VAc4, VAc5,	Formula	20%	40%	60%	80%	100%
CH01-02	VAc2, VAc3, VAc4, VAc5	Formula	20%	40%	60%	80%	100%
CH01-05	VAc2, VAc3, VAc4, VAc5	Measuring device and formula	20%	40%	60%	80%	100%
CH01-07	VAc2, VAc3, VAc4, VAc5	Measuring device and formula	20%	40%	60%	80%	100%
CH02-05	VAc2, VAc3, VAc4, VAc5	Statistical data existing	20%	40%	60%	80%	100%
CH02-06	VAc2, VAc3, VAc4, VAc5	Measuring device	20%	40%	60%	80%	100%
CH02-08	VAc2 (flooding areas)	GIS data modelling and data	20%	40%	60%	80%	100%
CH04-01	VAc2, VAc3, VAc4, VAc5	GIS data modelling	20%	40%	60%	80%	100%
CH04-03	VAc2, VAc3, VAc4, VAc5	GIS data modelling	20%	40%	60%	80%	100%
CH04-11	VAc2, VAc3, VAc4, VAc5	GIS data modelling	20%	40%	60%	80%	100%
CH05-02	VAc2, VAc3, VAc4, VAc5	Measuring device	20%	40%	60%	80%	100%
CH05-03	VAc2, VAc3, VAc4, VAc5	Measuring device	20%	40%	60%	80%	100%
CH05-16	VAc2, VAc3, VAc4, VAc6	Measuring device	20%	40%	60%	80%	100%
CH05-17	VAc2, VAc3, VAc4, VAc7	Measuring device	20%	40%	60%	80%	100%
CH05-18	VAc2, VAc3, VAc4, VAc8	Measuring device	20%	40%	60%	80%	100%
CH05-07	VAc2, VAc3, VAc4, VAc5	Formula and local data	20%	40%	60%	80%	100%
CH09-02	VAc2, VAc3, VAc4, VAc5	APP	20%	40%	60%	80%	100%
CH07-05	VAc2, VAc3, VAc4, VAc5	APP and local data	20%	40%	60%	80%	100%

Table 2.3: KPIs and data collection systems identification and status: Trees.



KPI	NBS	Period for baseline data collection	Percentage covered
CH01-01	Ton CO2 CARBON REMOVED per Ha	24 months	0%
CH01-02	Ton CO2 CARBON REMOVED per year	24 months	0%
CH01-05	TEMPERATURE DECREASE	24 months	0%
CH01-07	HEATWAVE RISK	24 months	0%
CH02-05	ABSORPTION CAPACITY (m3/tree)	24 months	0%
CH02-06	TEMPERATURE REDUCTION	24 months	0%
CH02-08	GREEN AREAS IN FLOOD RISK	24 months	0%
CH04-01	GREEN SPACE DISTRIBUTION (m2/capita)	24 months	0%
CH04-03	GREEN SPACE ACCESSIBILITY	24 months	0%
CH04-11	GREEN INFRASTRUCTURE CONNECTIVITY	24 months	0%
CH05-02	ANNUAL MEAN LEVELS OF FINE PM2.5 PARTICULES	24 months	0%
CH05-03	ANNUAL MEAN LEVELS OF FINE PM10 PARTICULES	24 months	0%
CH05-16	AIR QUALITY: CO	24 months	0%
CH05-17	AIR QUALITY: O3	24 months	0%
CH05-18	AIR QUALITY: C6H6	24 months	0%
CH05-07	AIR QUALITY MONETARY VALUES	24 months	0%
CH09-02	WALKING AREA INCREASE	24 months	0%
CH07-05	CITIZEN PERCEPTION	24 months	0%

Table 2.4: Baseline period and percentage covered for Trees.

## 2.3 Resting areas

Three green resting areas (Vac6) will be installed in SubDemos B (City Center), C1 (Football Stadium area) and C3 (Santos-Pilarica). The design contains street furniture such as a bike parking, resting structures (bench) and a pollinator's module (bugs hotel); vegetation for shadow (trees).

Resting areas	VAc6	Installation of 3 Green Resting areas (C1, B, C3)
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### 2.3.1 Tendering process

#### *Preparation and planning*

Deliverable *D2.3 Technical specifications*, describes the technical economical characteristics. However, finding the suitable location especially in the city center, with a lack of public space, is tricky. Likewise, it is necessary to integrate the resting areas with other UGU solutions.



For those reasons, a Landscape project will be subcontracted to define final designs and locations of the three Green resting areas. This project includes the Cycle lane, the Urban carbon sink and Pollinator's modules (see *section 2.1.1* and *Figure 2.1*. for further details).



### 2.3.2 Execution of works

Implementation works have not been started. The execution of works is expected to be started over the year 2020.

The purchase will be as a public supply contract. Although it is desirable to implement the Green corridor interventions together (cycle lane, resting areas, pollinator's, modules, etc.), we expect to launch the acquisition of the Green resting areas and Pollinator's modules before the cycle lane construction works, due to their public processes are easier.

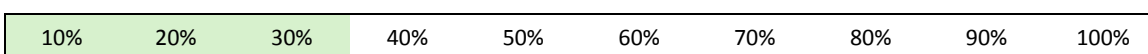
### 2.3.3 Deviations

There have not been deviations in the scope and technical-economic description of the intervention. It is foreseeable a delay in the implementation, taking next Spring 2020 as horizon.

### 2.3.4 Highlights

This group of interventions such as the cycle lane, pollinator's modules and the green resting areas have a great impact on the urban structure of the city. In addition, it includes aspects of mobility, urbanism and parks and gardens, so all the areas involved in the city council have to work together.

### 2.3.5 Implementation progress status



### 2.3.6 Monitoring

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH04-03	Vac6	GIS data modelling	20%	40%	60%	80%	100%
CH04-10	Vac6	APP and statistical data	20%	40%	60%	80%	100%
CH04-11	Vac6	GIS data modelling	20%	40%	60%	80%	100%
CH04-13	Vac6	APP	20%	40%	60%	80%	100%
CH07-05	Vac6	APP	20%	40%	60%	80%	100%
CH09-02	Vac6	APP and statistical data	20%	40%	60%	80%	100%

Table 2.5: KPIs and data collection systems identification and status: Resting areas.

KPI	KPI	Period for baseline data collection	Percentage covered
CH04-03	GREEN SPACE ACCESSIBILITY	24 months	0%
CH04-10	ELDERLY PEOPLE LIFE QUALITY	24 months	0%
CH04-11	GREEN INFRASTRUCTURE CONNECTIVITY	24 months	0%
CH04-13	CONNECTIVITY PERCEPTION	24 months	0%
CH07-05	CITIZEN PERCEPTION	24 months	0%
CH09-02	WALKING AREA INCREASE	24 months	0%

Table 2.6: Baseline period and percentage covered for Trees.



## 2.4 Stormwater management systems

The surroundings of the José Zorrilla Stadium will be re-natured with different types of NBS to manage the stormwater: green parking pavements (Vac14), sustainable drainage systems (Vac9) and rain gardens (VAc10). In the same way, Sustainable drainage systems (SUDs) will be also implemented in different locations of the green corridor (VAc8), as delivered in D2.3.

Stormwater management systems	VAc8	SUDs for green bike lane	A.- Green corridor.
	VAc9	SUDs for re-naturing parking	C1.- Football Std area
	VAc10	Rain gardens	C1.- Football Std area
	VAc14	Green Parking Pavements	C1.- Football Std area

### 2.4.1 Tendering process

#### Preparation and planning

In July 2019, CENTA foundation completed a preliminary project with the SUDs description (VAc8, Vac9, Vac10). Until September 2019, this preliminary design was sent by the Innovation Agency to the different city council departments for its internal approval. No comments were received.

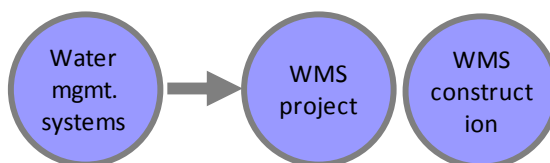


Figure 2.2: Stormwater management systems tendering process (Soruce. VAL)

A new opportunity emerged for the SUDs actions located in the Stadium area. Field Factors, an engineering consultancy firm from the Netherlands, and partner on the NAIAD H2020 project, contacted the Innovation Agency of Valladolid under the ‘Partners voor Water’ framework. This programme, run by the Enterprises Agency of the Dutch government, promotes replication of water management projects. Field Factors puts all its efforts in implementing an innovative system to reuse rainwater for irrigation purposes through a natural treatment plant, already implemented in the Sparta Stadium in Rotterdam. Now, Field Factors is studying the viability to replicate the rainwater treatment system at the Valladolid Stadium within a collaboration project called ‘URBAN WATERBUFFER IN VALLADOLID’.

With the aim of developing a more integrated and efficient proposal, partners of the Urban GreenUP work together with Field Factors. This will allow the use of rainwater collected from rain gardens and solve flood problems during heavy rain events. At the end of June 2019, the viability study developed by the Dutch company, showed good results. Their next step is the development of the execution plan (see section 3.5.1 about Non-technical actions).

November 2019: *Vac14-Green Parking Pavements* are being included in the same technical report elaborated by CENTA. CEN is now leading the Vac14 intervention with VAL. This inclusion will ease to launch the “Stormwater management systems” procurement process, integrating NBS of the same nature. Technical details of the SUDs systems are being developed by CENTA, in order to be added into the technical report, which is above mentioned. This

technical report will support basis of the upcoming tendering process of construction project and execution of works.

#### 2.4.2 Execution of works

Implementation works have not been started. Execution of works would start in the first semester of 2020.

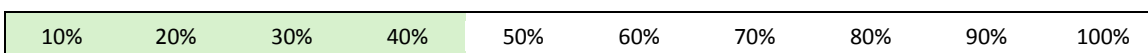
#### 2.4.3 Deviations

There have been no significant deviations. One positive change is that CENTA will assume the responsibility of Valladolid City Council in preparing the technical report. Integrating the construction project and execution of works as only one public tendering process will greatly facilitate the public procurement process. The project will no longer be outsourced by Valladolid City Council.

#### 2.4.4 Highlights

The collaboration between Field Factors and the URBAN GreenUP partners Foundation CENTA and the Valladolid City Council Innovation Agency is very interesting and fruitful. Furthermore, Aquavall (the municipal company for the water management in Valladolid), Urbanism and Sports departments are also involved in the co-creation and design of the project, as well as Real Valladolid Football Club. The project will also seek the co-financing of the project by the football club, as an example of public-private collaboration in the re-naturalization of the city.

#### 2.4.5 Implementation progress status



#### 2.4.6 Monitoring

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH02-01	VAc8, VAc9,VAc10, VAc14	Monitoring	20%	40%	60%	80%	100%
CH02-06	VAc8, VAc9,VAc10, VAc14	Monitoring	20%	40%	60%	80%	100%
CH02-07	VAc8, VAc9,VAc10, VAc14	Formula and local data	20%	40%	60%	80%	100%
CH02-12	VAc8, VAc9,VAc10	Water quality analysis	20%	40%	60%	80%	100%
CH02-13	VAc8, VAc9,VAc10	Water quality analysis	20%	40%	60%	80%	100%
CH02-14	VAc8, VAc9,VAc10	Water quality analysis	20%	40%	60%	80%	100%
CH02-18	VAc8, VAc9,VAc10	Monitoring	20%	40%	60%	80%	100%
CH05-07	VAc8, VAc9,VAc10	Formula and local data	20%	40%	60%	80%	100%
CH07-03	VAc8, VAc9,VAc10	Monitoring	20%	40%	60%	80%	100%

Table 2.7: KPIs for Stormwater management systems.

KPI	KPI	Period for baseline data collection	Percentage covered
-----	-----	-------------------------------------	--------------------



<b>CH02-01</b>	RUN-OFF COEFFICIENT	12 months	0%
<b>CH02-06</b>	TEMPERATURE REDUCTION	12 months	0%
<b>CH02-07</b>	INTERCEPTED RAINFALL	12 months	0%
<b>CH02-12</b>	NUTRIENT ABATEMENT (Chemical Oxygen Demand, COD)	12 months	0%
<b>CH02-13</b>	NUTRIENT ABATEMENT (Biochemical Oxygen Demand, BOD)	12 months	0%
<b>CH02-14</b>	NUTRIENT ABATEMENT (Total Solids, SST)	12 months	0%
<b>CH02-18</b>	WATER REMOVED FROM THE WATER TREATMENT	12 months	0%
<b>CH05-07</b>	AIR QUALITY MONETARY VALUES	12 months	0%
<b>CH07-03</b>	ENERGY SAVINGS RELATED TO GREEN INFRASTRUCTURE	12 months	0%

Table 2.8: Baseline period and percentage covered for Stormwater management systems.

The following equipment can monitor the data required.



Smart Agriculture sensor

Temperature Data Logger

Figure 2.3: Monitoring devices for KPI CH2-06 (Sources: Sigfox partner network and Elitech LTD)



Non-contact flow meter

Ultrasonic Flow Meters

Figure 2.4: Monitoring devices for KPI CH2-18 (Sources: Labochema and indiaMART)

## 2.5 Green Infrastructure

This group of interventions include the naturalization of a canopy and the installation of three types of mobile vertical gardens in the city centre, 19 units in total.

Green infrastructure	VAc24	Green Vertical mobile garden	19 units
	VAc27	Green Covering Shelter	Plaza España

### 2.5.1 Tendering process

#### *Preparation and planning*

November 2018: The Innovation Agency of the Valladolid City council receives the “Construction project of green infrastructure: green roof in España square and mobile vertical

gardens” from SingularGreen. The project includes the following documents: index, technical report, plans and drawings, technical specifications, estimate, study of health and safety, and waste management.

December 2018: The Innovation Agency requested reports to the area of Urbanism, Infrastructure and Housing (Public Space and Infrastructure service), Environment and Sustainability area (Parks and Gardens service, Health and Consumption service), Security area and Mobility, AQUAVALL (the municipal water management company) and Department of Patrimony (Property section), in relation to the project of works elaborated by SingularGreen.

February 2019: The considerations collected from the different areas and departments are moved to SingularGreen, to make corrections and modifications necessary in the documents of the project.

March 2019: SingularGreen sends the “Construction project of green infrastructure: vegetal roof in España square and mobile vertical gardens” including all the modifications and considerations requested.

March-April 2019: the Innovation Agency works in the preparation of the administrative and technical documents of the contract dossier for the tendering process: supporting memory, complete and signed construction project, particular administrative clauses and table of characteristics, statement of the project editor, financial sustainability report, credit retention documents, project supervision report, document for verifying readiness for construction, report of the Administrative Secretariat, report of Controller (accounting and finance), Proposed Agreement.

May 2019: The contract file is approved by Valladolid City Council (Government Board).

### *Publication and transparency*

18<sup>th</sup> June 2019: the tendering opportunity was officially published and launched in the Procurement Platform for the Public Sector of Spain (PPPS, [www.contrataciondelestado.es](http://www.contrataciondelestado.es)).

### *Submission of tenders, opening and selection*

Construction companies have 31 days for submitting bids to the tender. 19<sup>th</sup> July 2019: deadline for bids submission.

### *Evaluation and award*

The works have been already awarded to the contractor company. The contract has been formalized.

## **2.5.2 Execution of works**

Implementation works have started. The construction of the vertical mobile gardens is now on process at workshop (November 2019). Construction works at España square will start on-site in January 2020.



### 2.5.3 Deviations

In November 2019 there was a meeting with the merchants of the daily market of the Plaza España to listen to their needs (see section 3.3. *Engagement the URBAN GreenUP interventions*). Due, the works at España square have been delayed after Christmas holidays, because the season is very important for the tenants. It has been agreed to postpone the works until Christmas ends. However, we do not expect that this delay will affect the monitoring period.

### 2.5.4 Highlights

These interventions will have a great impact on the citizens because they will be installed in busy and well frequented places. The political decisions regarding the location and co-financing by the city council have been decisive for the development of the interventions.

### 2.5.5 Implementation progress status



### 2.5.6 Monitoring

This intervention will be assessed with KPIs CH01-05, CH01-07, CH04-01, CH04-03, CH05-02, CH05-07, CH07-03, CH07-05, CH09-02 and CH10-03. Only KPIs CH01-05, CH01-07 and CH05-02 imply the use of in situ monitoring devices.

CARTIF has bought and installed *in situ* temperature and relative humidity sensors for assessing this intervention according KPIs CH01-05 and CH01-07 specifications: 3 units for collecting information in España Sq., where the green covering shelter will be installed, and 2 units more in the reference location (Rinconada Sq.). Additionally, CARTIF is collecting PM10 and PM2,5 concentrations periodically in the same locations for assessing the impact of this intervention according KPI CH05-02 description.

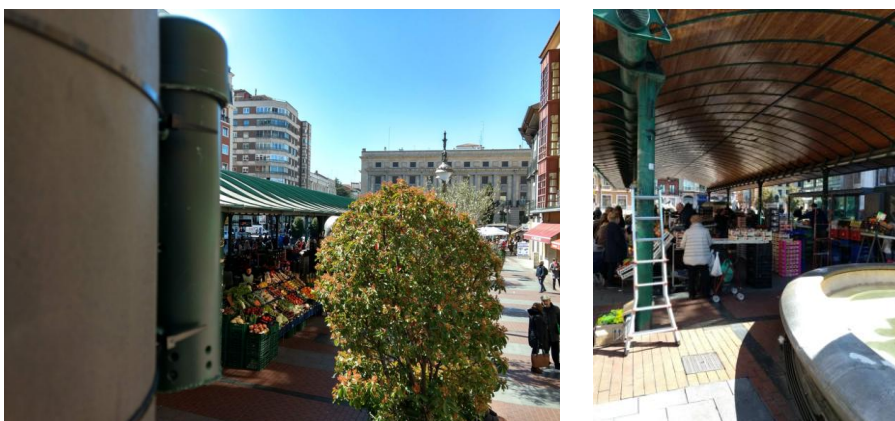


Figure 2.5: Temperature and relative humidity sensors installed in Plaza España (Source: CARTIF)

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH01-05	VAc24, VAc27	Measuring device and formula	20%	40%	60%	80%	100%
CH01-07	VAc24, VAc27	Measuring device	20%	40%	60%	80%	100%

CH04-01	VAc24, VAc27	GIS data modelling	20%	40%	60%	80%	100%
CH04-03	VAc24, VAc27	GIS data modelling	20%	40%	60%	80%	100%
CH04-11	VAc24, VAc27	GIS data modelling	20%	40%	60%	80%	100%
CH05-02	VAc24, VAc27	Measuring device	20%	40%	60%	80%	100%
CH05-07	VAc24, VAc27	Formula and local data	20%	40%	60%	80%	100%
CH07-03	VAc24, VAc27	Measuring devices	20%	40%	60%	80%	100%
CH07-05	VAc24, VAc27	App	20%	40%	60%	80%	100%
CH09-02	VAc24, VAc27	On-line surveys	20%	40%	60%	80%	100%
CH10-03	VAc24, VAc27	Formula and local data	20%	40%	60%	80%	100%

Table 2.9: KPIs and data collection systems identification and status for Green infrastructure.

KPI	KPI	Period for baseline data collection	Percentage covered
CH01-05	TEMPERATURE DECREASE	12 months	40%
CH01-07	HEATWAVE RISK	12 months	40%
CH04-01	GREEN SPACE DISTRIBUTION (m2/capita)	12 months	50%
CH04-03	GREEN SPACE ACCESSIBILITY	12 months	50%
CH04-11	GREEN INFRASTRUCTURE CONNECTIVITY	12 months	50%
CH05-02	ANNUAL MEAN LEVELS OF FINE PM2.5 PARTICULES	12 months	50%
CH05-07	AIR QUALITY MONETARY VALUES	12 months	50%
CH07-03	ENERGY SAVINGS RELATED TO GI	12 months	50%
CH07-05	CITIZEN PERCEPTION	12 months	50%
CH09-02	WALKING AREA INCREASE	12 months	50%
CH10-03	JOB CREATION	With every implementation	50%

Table 2.10: Baseline period and percentage covered for Green infrastructure.

## 2.6 Green Roof

A green roof will be installed in an existing building of the city: the El Campillo municipal market.

Green roof	VAc28	Green Roof
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### 2.6.1 Tendering process

#### *Preparation and planning*

The technical and economical project has been developed by SingularGreen. The first idea was a roof cover with a vegetable skin across the seven existing vaults. The market building has water leaking problems, and it was not possible to modify other parts of the roof. However, after several meetings and proposals, it is possible to retrofit all the roof of the building, so a new location of the green roof and new construction solution have been developed, to find a solution which suits better the objectives of the project: the result will be the implementation of three different types of green roof with different construction solutions, materials, and plants.



### Publication and transparency

Tendering process is ongoing. The tendering publication in the Procurement Platform for the Public Sector of Spain is expected to be on December 2019.

#### 2.6.2 Execution of works

Implementation works have not been started. Construction works will start in the first quarter of year 2020.

#### 2.6.3 Deviations

There is a delay on the expected planned timeline (construction was expected to start on August 2019), but we are still on time to reach two years of monitoring period.

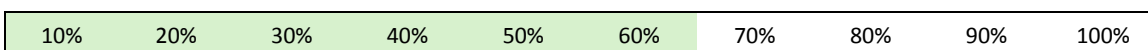
#### 2.6.4 Highlights

Valladolid City Council has increased the co-financing percentage of the intervention to cover the whole roof with the vegetable garden.

The green roof of the URBAN GreenUP project was the trigger to reform the entire roof and to waterproof the deck. Costs are funded by the City Council with own means.

The Innovation Agency of Valladolid City Council, opens every year a call for applications for grants to promote the circular economy. On 2018 one of the awarded projects was “Lanaland”, by SbioRN, a demonstration project of the installation of a green roof with sheep wool which aims to develop biodegradable materials as an alternative to expanded polystyrene. Therefore, for the re-naturalization of the roof, this material will be used in some parts of the building roof, through a collaboration project. It is an initiative which helped to define more sustainable materials at a time involved the society in the NBS design. In addition, Valladolid City Council is seeking how to involve the owners of the market stalls in the building in the maintenance, use and benefit.

#### 2.6.5 Implementation progress status



#### 2.6.6 Monitoring

KPI	NBS	Type of information collection system	Status of development				
CH02-18	Vac28	Flowmeters	20%	40%	60%	80%	100%
CH04-01	Vac28	GIS data modelling	20%	40%	60%	80%	100%
CH04-03	Vac28	GIS data modelling	20%	40%	60%	80%	100%
CH04-11	Vac28	GIS data modelling	20%	40%	60%	80%	100%
CH07-03	Vac28	Measuring devices	20%	40%	60%	80%	100%
CH07-05	Vac28	App	20%	40%	60%	80%	100%
CH09-02	Vac28	On-line surveys	20%	40%	60%	80%	100%
CH10-03	Vac28	Formula and local data	20%	40%	60%	80%	100%

Table 2.11: KPIs and data collection systems identification and status for Green roof.





KPI	KPI	Period for baseline data collection	Percentage covered
CH02-18	WATER REMOVED FROM THE WATER TREATMENT	24 months	0 %
CH04-01	GREEN SPACE DISTRIBUTION (m2/capita)	24 months	0 %
CH04-03	GREEN SPACE ACCESSIBILITY	24 months	0 %
CH04-11	GREEN INFRASTRUCTURE CONNECTIVITY	24 months	0 %
CH07-03	ENERGY SAVINGS RELATED TO GI	6 months	0 %
CH07-05	CITIZEN PERCEPTION	6 months	0 %
CH09-02	WALKING AREA INCREASE	24 months	0 %
CH10-03	JOB CREATION	With every implementation	0 %

Table 2.12: Baseline period and percentage covered for Green roof.

## 2.7 Green Canopies

An innovative system of green shady canopies with stretched textile structures will be implemented in a commercial street of Valladolid city centre, Santa María Street.

Green canopies	VAc29	Green Shady Structures
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### 2.7.1 Tendering process

#### *Preparation and planning*

April 2019: The Innovation Agency of the Valladolid City Council receives the “Construction project of Green Canopies”, according to the technical specifications defined in D2.3 *Technical specifications of Valladolid Demo*. The project includes the following documents: index, technical report, plans and drawings, technical specifications, estimate, study of Health and Safety, and waste management.

May-August 2019: The Valladolid City Council is analysing the project and solving some technical and security problems. An efficient lighting system with presence sensors to reduce lighting consumption in the night, will be integrated in the canopies. Currently, the project is being defined.

September-October 2019: The Innovation Agency worked in the preparation of the administrative and technical documents of the contract file for the tendering process: supporting memory, complete and signed construction project, particular administrative clauses and table of characteristics, statement of the project editor, financial sustainability report, credit retention documents, project supervision report, document for verifying readiness for construction, report of the Administrative Secretariat, report of Controller (accounting and finance), Proposed Agreement.

#### *Publication and transparency*

Tendering process is ongoing. The tendering publication in the Procurement Platform for the Public Sector of Spain is expected to be on December 2019.



## 2.7.2 Execution of works

Implementation works have not been started. Construction works will start in the first semester of year 2020.

## 2.7.3 Deviations

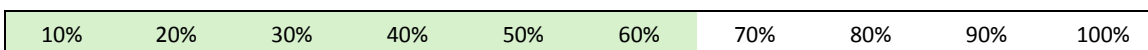
There is a delay on the planned expected timeline (construction was expected to start on September 2019), but we are still on time to reach two years of monitoring period.

## 2.7.4 Highlights

The developed technical solution is really innovative. That means a rigorous analysis of the regulation completion in order to guarantee the safety and durability requirements. This could delay the implementation construction.

The green canopies will attract an increasing number of visitors and many customers for commercial activities. Several meetings with business owners of the zone in which green canopies are going to be installed, have been undertaken to understand the ideas and questions of the key stakeholders. Involving them in this early stage of the implementation was a measure to ensure they are bought in to the project's objectives and therefore help secure the long-term success of the NBS.

## 2.7.5 Implementation progress status



## 2.7.6 Monitoring

This intervention will be assessed with KPIs CH01-05, CH01-07, CH04-01, CH04-03, CH05-02, CH05-07, CH07-03, CH07-05, CH09-02 AND CH10-03. Only KPIs CH01-05, CH01-07 and CH05-02 imply the use of in situ monitoring devices.

CARTIF has bought and installed in situ temperature and relative humidity sensors for assessing this intervention according KPIs CH01-05 and CH01-07 specifications: 5 units for collecting information in Santa María St., where the green canopies will be installed, and 5 units more in the reference street (Montero Calvo St.). Additionally, CARTIF is collecting PM10 and PM2,5 concentrations periodically in the project's locations for assessing the impact of this intervention according KPI83 description.



Figure 2.6: Temperature and relative humidity sensors installed in Santa María St (Source: CARTIF)

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH01-05	Vac29	Measuring device and formula	20%	40%	60%	80%	100%
CH01-07	Vac29	Measuring device	20%	40%	60%	80%	100%
CH04-01	Vac29	GIS data modelling	20%	40%	60%	80%	100%
CH04-03	Vac29	GIS data modelling	20%	40%	60%	80%	100%
CH04-11	Vac29	GIS data modelling	20%	40%	60%	80%	100%
CH05-02	Vac29	Measuring device	20%	40%	60%	80%	100%
CH05-07	Vac29	Formula and local data	20%	40%	60%	80%	100%
CH07-03	Vac29	Measuring devices	20%	40%	60%	80%	100%
CH07-05	Vac29	App	20%	40%	60%	80%	100%
CH09-02	Vac29	On-line surveys	20%	40%	60%	80%	100%
CH10-03	Vac29	Formula and local data	20%	40%	60%	80%	100%

Table 2.13: KPIs and data collection systems identification and status for Green canopies.

KPI	KPI	Period for baseline data collection	Percentage covered
CH01-05	TEMPERATURE DECREASE	12 months	40%
CH01-07	HEATWAVE RISK	12 months	40%
CH04-01	GREEN SPACE DISTRIBUTION (m2/capita)	12 months	50%
CH04-03	GREEN SPACE ACCESSIBILITY	12 months	50%
CH04-11	GREEN INFRASTRUCTURE CONNECTIVITY	12 months	50%
CH05-02	ANNUAL MEAN LEVELS OF FINE PM2.5 PARTICULES	12 months	50%
CH05-07	AIR QUALITY MONETARY VALUES	12 months	50%
CH07-03	ENERGY SAVINGS RELATED TO GI	12 months	50%
CH07-05	CITIZEN PERCEPTION	12 months	50%
CH09-02	WALKING AREA INCREASE	12 months	50%
CH10-03	JOB CREATION	12 months	50%

Table 2.14: Baseline period and percentage covered for Green canopies.

## 2.8 Green Façade

A vertical garden will be implemented in a commercial building in the historical centre of the city. The building belongs to a private company, El Corte Inglés.

Green façade	VAc25	Green Façade
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### 2.8.1 Tendering process

#### *Preparation and planning*

May 2019: After a long process of negotiation with El Corte Inglés, the signing of the Agreement regulating the commitments of both parties for the construction of the natural facade in a building owned by the company has been agreed and signed.

In parallel, City Council technicians, architects of SingularGreen and technical staff of El Corte Inglés, have been working together on the design and development of the project, including:



- the structural reinforcement of the building, that will be executed and financed by El Corte Inglés; and
- the construction of the vegetable garden executed through a process of public bidding and the co-financing of the Valladolid City Council and the European Commission through the URBAN GreenUP project.

These projects are in the process of approval by the different areas of the Valladolid City Council.

### *Publication and transparency*

7<sup>th</sup> November 2019: the tendering opportunity has been published and launched in the Procurement Platform for the Public Sector. Link to the bid:

[https://contrataciondelestado.es/wps/poc?uri=deeplink%3Adetalle\\_licitacion&idEvl=hilvIW%2BpSRymq21uxhbaVQ%3D%3D](https://contrataciondelestado.es/wps/poc?uri=deeplink%3Adetalle_licitacion&idEvl=hilvIW%2BpSRymq21uxhbaVQ%3D%3D)

### *Submission of tenders, opening and selection*

Construction companies have 31 days for submitting bids to the tender. 10<sup>th</sup> December 2019: deadline for bids submission.

#### **2.8.2 Execution of works**

Implementation works have not been started. Construction works are expected to start in February 2020. There is a commitment to El Corte Inglés whereby they will first build the anchor structure and the services room. The two construction works are related and contiguous.

#### **2.8.3 Deviations**

The Vac25-Green façade was planned to be installed in a public building. After analyzing the availability of buildings in the city center (SUBDemo B), it was determined that the façade of El Corte Inglés complied better with the requirements for the installation (loading capacity, location, visibility).

There is a delay on the expected timeline (construction was expected to start on October 2019), but we are still on time to reach two years of monitoring period.

#### **2.8.4 Highlights**

The private company will co-finance the construction and they will be in charge of the garden maintenance. Valladolid City Council and El Corte Inglés signed a Collaboration agreement (May 2019). The co-funding by El Corte Inglés represents a cooperation study case between the private and public sectors in the development of Nature Based Solutions in cities, that could be replicated in other scenarios or cities.

This green façade seeks to be very symbolic of the project, so the efforts for development of the technology in its designing phase are being emphasized. In this sense, the co-designing work developed between El Corte Inglés, SingularGreen and Valladolid City Council to



elaborate the technical project is very interesting, and every partner is learning lessons from the others.

### 2.8.5 Implementation progress status



### 2.8.6 Monitoring

This intervention will be assessed with KPIs CH01-05, CH01-07, CH04-01, CH04-03, CH05-02, CH05-07, CH07-03, CH07-05, CH09-02 AND CH10-03. Only KPIs CH01-05, CH01-07 and CH05-02 imply the use of in situ monitoring devices.

CARTIF has bought and installed in situ temperature and relative humidity sensors for assessing this intervention according KPIs CH01-05 and CH01-07 specifications: 2 units for collecting information in front of the green façade and 2 units more in a reference location (Rinconada Sq.). Additionally, CARTIF is collecting PM10 and PM2,5 concentrations in the project locations for assessing the impact of this intervention according KPI83 description.



Figure 2.7: Temperature and relative humidity sensors installed (Source: CARTIF)

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH01-05	Vac29	Measuring device and formula	20%	40%	60%	80%	100%
CH01-07	Vac29	Measuring device	20%	40%	60%	80%	100%
CH04-01	Vac29	GIS data modelling	20%	40%	60%	80%	100%
CH04-03	Vac29	GIS data modelling	20%	40%	60%	80%	100%
CH04-11	Vac29	GIS data modelling	20%	40%	60%	80%	100%
CH05-02	Vac29	Measuring device	20%	40%	60%	80%	100%
CH05-07	Vac29	Formula and local data	20%	40%	60%	80%	100%
CH07-03	Vac29	Measuring devices	20%	40%	60%	80%	100%
CH07-05	Vac29	App	20%	40%	60%	80%	100%
CH09-02	Vac29	On-line surveys	20%	40%	60%	80%	100%
CH10-03	Vac29	Formula and local data	20%	40%	60%	80%	100%

Table 2.15: KPIs and data collection systems identification and status for Green façade.

KPI	KPI	Period for baseline data collection	Percentage covered
CH01-05	TEMPERATURE DECREASE	12 months	40%
CH01-07	HEATWAVE RISK	12 months	40%
CH04-01	GREEN SPACE DISTRIBUTION (m2/capita)	12 months	50%
CH04-03	GREEN SPACE ACCESSIBILITY	12 months	50%
CH04-11	GREEN INFRASTRUCTURE CONNECTIVITY	12 months	50%
CH05-02	ANNUAL MEAN LEVELS OF FINE PM2.5 PARTICULES	12 months	50%
CH05-07	AIR QUALITY MONETARY VALUES	12 months	50%
CH07-03	ENERGY SAVINGS RELATED TO GI	12 months	50%
CH07-05	CITIZEN PERCEPTION	12 months	50%
CH09-02	WALKING AREA INCREASE	12 months	50%
CH10-03	JOB CREATION	12 months	50%

Table 2.16: Baseline period and percentage covered for Green façade.

## 2.9 Green Noise Barriers

Vertical green infrastructure will be installed in a critical point of the city to mitigate the noise of traffic. The location is in Hospital Militar Street. Both interventions, Vac22 and Vac23 will be implemented together in SubDemo B.

Green noise barriers	VAc22	Green noise barriers	A.- Green corridor
	VAc23	Green noise barriers	B.- City center

### 2.9.1 Tendering process

#### *Preparation and planning*

The definition of a prototype is now under a comprehensive review process to improve its effectiveness.

On the other hand, the same location where the installation is planned (the median of Paseo Hospital Militar Av) have recently planted trees (October 2019). The procedure to be followed is being assessed.

### 2.9.2 Execution of works

Implementation works have not been started. Construction works will star in year 2020.

### 2.9.3 Deviations

There is a delay on the expected planned timeline (construction was expected to start on August 2019), but we are still on time to reach two years of monitoring period.

### 2.9.4 Highlights

First results from an engineering specialist in noise reduction, do not show totally positive results: the noise reduction is not the expected and insufficient. The work is now focused on the improvement of the design.



### 2.9.5 Implementation progress status

10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
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Technical project is not really finished (50%), but the detailed design and specifications are agreed and underway (30%) and the Economical specifications are calculated (40%).

### 2.9.6 Monitoring

KPI	NBS	Type of information collection system	Status of development				
CH04-01	Vac22, Vac23	GIS data modelling	20%	40%	60%	80%	100%
CH04-03	Vac22, Vac23	GIS data modelling	20%	40%	60%	80%	100%
CH04-11	Vac22, Vac23	GIS data modelling	20%	40%	60%	80%	100%
CH07-03	Vac22, Vac23	Measuring devices	20%	40%	60%	80%	100%
CH07-05	Vac22, Vac23	App	20%	40%	60%	80%	100%
CH09-01	Vac22, Vac23	Measuring device and modelling	20%	40%	60%	80%	100%
CH09-02	Vac22, Vac23	On-line surveys	20%	40%	60%	80%	100%
CH10-03	Vac22, Vac23	Formula and local data	20%	40%	60%	80%	100%

Table 2.17: KPIs and data collection systems identification and status for Green noise barriers.

KPI	KPI	Period for baseline data collection	Percentage covered
CH04-01	GREEN SPACE DISTRIBUTION (m2/capita)	12 months	0%
CH04-03	GREEN SPACE ACCESSIBILITY	12 months	0%
CH04-11	GREEN INFRASTRUCTURE CONNECTIVITY	12 months	0%
CH07-03	ENERGY SAVINGS RELATED TO GI	12 months	0%
CH07-05	CITIZEN PERCEPTION	12 months	0%
CH09-01	NOISE REDUCTION	12 months	0%
CH09-02	WALKING AREA INCREASE	12 months	0%
CH10-03	JOB CREATION	12 months	0%

Table 2.18: Baseline period and percentage covered for Green noise barriers.

## 2.10 Bio-filter

A bio-filter system to treat the indoor air of an underground car parking will be installed in the city centre. The bio-filter is on the garden beside the gas outlet of Plaza Zorrilla car parking.

Bio-filter	VAc30 Urban Garden Bio-Filter
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### 2.10.1 Tendering process

#### *Preparation and planning*

2018-2019. CARTIF has tested a prototype in their laboratory and the technology is working properly. Now, the work is focus on the definition of technical and administrative details of the contract.



Procurement process for the construction will be launched in a single process (contract file). Technical-economical report delivered by CARTIF will be used as basis.

January 2020. CAR and VAL will have a meeting with the private company that operates the car parking, Aparcamientos Españoles. The objective is the company engagement, co-responsibility and co-financing.

### 2.10.2 Execution of works

Implementation works have not been started. The bio-filter it is expected to be implemented over the year 2020.

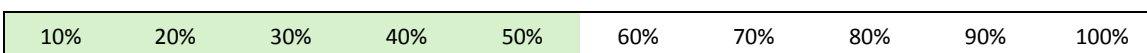
### 2.10.3 Deviations

This intervention was led by ACC (Acciona) in the Grant Agreement. After the first Amendment, it is led by CAR (CARTIF).

### 2.10.4 Highlights

Aparcamientos Españoles, a private company, operates the parking under an agreement with the City Council, so it is also necessary to reach an agreement with them. The company could sponsor the NBS.

### 2.10.5 Implementation progress status



The technical-economical report for the tendering process is close to be delivered by CARTIF.

### 2.10.6 Monitoring

This intervention will be assessed with KPIs CH04-01/02, CH04-03, CH04-11, CH05-02, CH05-05, CH05-15, CH07-03, CH07-05, CH09-02 and CH10-03. Only KPI CH05-02 and CH05-15 imply the use of in situ monitoring devices.

A preliminary monitoring campaign (only NO<sub>x</sub> concentration and Temperature and relative humidity) was carried out in 2017 in the location of the bio-filter over a 6-month period. CARTIF used 3 monitoring devices to measure NO<sub>2</sub>, O<sub>3</sub> and PM<sub>2,5</sub> concentrations, temperature and relative humidity. According to CH05-02 and CH05-15 (and monitoring plan presented in D2.4), it should be measured in three monitoring locations to assess the impact of this intervention. One Outdoor air monitoring point next to the bio-filter, another outdoor air monitoring point in the same area but far enough from the bio-filter and the last one inside of the underground car park.

These monitoring systems are being installed. The first device, the outdoor one far away from the bio-filter, was installed in July 2018. The other two devices will be installed in coming weeks.







Figure 2.8: Monitoring device of NO<sub>2</sub>, O<sub>3</sub> and PM<sub>2,5</sub> installed and installation works (Source: CARTIF)

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH04-01	Vac30	GIS analysis	20%	40%	60%	80%	100%
CH04-02	Vac30	GIS analysis	20%	40%	60%	80%	100%
CH04-03	Vac30	GIS analysis	20%	40%	60%	80%	100%
CH04-11	Vac30	GIS analysis	20%	40%	60%	80%	100%
CH05-02	Vac30	Monitoring	20%	40%	60%	80%	100%
CH05-05	Vac30	Public data collection	20%	40%	60%	80%	100%
CH05-15	Vac30	Monitoring	20%	40%	60%	80%	100%
CH05-16	Vac30	Monitoring	20%	40%	60%	80%	100%
CH05-17	Vac30	Monitoring	20%	40%	60%	80%	100%
CH05-18	Vac30	Monitoring	20%	40%	60%	80%	100%
CH07-03	Vac30	Formula	20%	40%	60%	80%	100%
CH07-05	Vac30	App	20%	40%	60%	80%	100%
CH10-03	Vac30	Public data collection	20%	40%	60%	80%	100%

Table 2.19: KPIs and data collection systems identification and status for Bio-filter.

KPI	KPI	Period for baseline data collection	Percentage covered
CH04-01	GREEN SPACE DISTRIBUTION (m2/capita)	12 months	50%
CH04-02	GREEN SPACE DISTRIBUTION (km cycle lane/capita)	12 months	50%
CH04-03	GREEN SPACE ACCESSIBILITY	12 months	50%
CH04-11	GREEN INFRASTRUCTURE CONNECTIVITY	12 months	50%
CH05-02	ANNUAL MEAN LEVELS OF FINE PM2.5 PARTICULES	12 months	50%
CH05-05	MEAN LEVELS OF EXPOSURE TO AIR POLLUTION	12 months	40%
CH05-15	AIR QUALITY PARAMETERS	12 months	50%
CH05-16	AIR QUALITY: CO	12 months	50%
CH05-17	AIR QUALITY: O3	12 months	50%
CH05-18	AIR QUALITY: C6H6	12 months	50%
CH07-03	ENERGY SAVINGS RELATED TO GREEN INFRASTRUCTURE	12 months	50%
CH07-05	CITIZEN PERCEPTION	12 months	50%
CH10-03	JOB CREATION	12 months	50%

Table 2.20: Baseline period and percentage covered for Bio-filter.

## 2.11 Electro-wetland

This innovative technology consists of a natural wastewater treatment system that, in addition, generates electrical energy from the organic matter degradation. It will be installed in a park of the city, Patricia Park, in Fernando Ferreiro street, located at the east of the green corridor area.

EW	VAc26 Electro wetland	There is not public procurement process for the construction. LEITAT designs, constructs and operate the EW in Valladolid. The City Council provides use approval.
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### 2.11.1 Contract process

#### *Preparation and planning*

Implementing the electro-wetland technology in Valladolid requires subcontracting the works to an external company, which LEITAT is in charge and the City Council is only the promoter. Meanwhile LEITAT oversees the technical and economical project; the construction project is being subcontracted by them. Therefore, certain specific parts of the works will be accompanied by the specific lead of LEITAT. Those are the ones that include the microbial fuel cells, the “electro” component of the wetland.

December 2018. The preliminary design has been approved by the Valladolid City Council.

August 2019. The final and complete design of the electro-wetland is defined (project delivered). A first private tendering process regarding the elaboration of the Construction Project Report was launched following the procedures legally established. Once launched and solved, in August 2019, LEITAT received the Construction Project Report from the subcontracted company.

The Construction Project Report approval consists on several steps including: (1) Agreement of the municipal departments, September-October 2019, such as the Department of Parks and Gardens and Aquavall - the municipal water company; (2) Final approval by de City Council (currently).

September-October 2019. Final Project is revised by Valladolid City Council among the different areas. This first step was concluded at 20/10/2019 which was the deadline that City Council Departments had to provide their Reports indicating comments and modifying suggestions. The lack of response from the City Council Departments indicates their agreement with the project proposed.

November-December 2019. That final Project must be officially approved by the Valladolid City Council before starting the execution of works. The procedure to conduct the second step, the Final City Council approval is, at this moment, under decision process between different members of the City Council, which will define it during the following month. It should be noted that this EW scenario does not adapt to the usual contracting procedures or the City Council permits. For this reason, the operation procedure is now being defined.



Expected January 2020. Once the constructive project has its Final Approval, a second tendering process will be launched by LEITAT to subcontract the construction works. The City Council supervises the works.

### 2.11.2 Execution of works

Implementation works have not been started. Following the planned schedule, construction is expected to be completed before the end of Task 2.8. However, it is subjected to the Final Approval of the City Council and the tender for the Construction Works to be launched and solved. It should be noted that the contracting of works is private, faster than the public tendering process.

### 2.11.3 Deviations

The main deviations of the Electrowetland include:

- Location: technical and political reasons made the Electrowetland location to be changed twice during 2017 and 2018. The final location (at Fernando Ferreiro Street) is next to the green corridor. Furthermore, technical reasons such as the high surface density of the technology (around 2.200 kg/m<sup>2</sup>) prevented its location as an Electrowetland roof in the top of a building. Responding to this inconvenient, the final location will be at an urban park at ground level (Patricia Park).

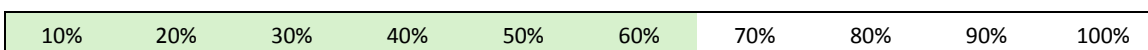
This justified change in the location will be supported by developing specific non-technical actions for communication and dissemination among the citizens.

- Total investment cost: the final budget for the Electrowetland construction will be increased from 56.000 € (as established in the Grant Agreement) to 83.752,8 €, since several items (connection to the municipal sewer, pretreatment, recirculation system, etc) have been added to make possible the implementation.

### 2.11.4 Highlights

The electro-wetland has an important innovative character, because it is a solution that was only tested at the laboratory level. This has involved solving different types of barriers in relation to the location and compliance of regulations, apart from the technological ones. The initial planned locations have been changed because of technical and mistrust reasons. Additional adjustments in the technology itself (due its innovative character) are being made at Leitat laboratory facilities to increase the success of the upscaling process.

### 2.11.5 Implementation progress status



### 2.11.6 Monitoring

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH02-04	VAc26	Other: Analysis	20%	40%	60%	80%	100%
CH02-06	VAc26	Monitoring	20%	40%	60%	80%	100%



CH02-12	VAc26	Statistics (water quality analysis)	20%	40%	60%	80%	100%
CH02-13	VAc26	Statistics (water quality analysis)	20%	40%	60%	80%	100%
CH02-14	VAc26	Statistics (water quality analysis)	20%	40%	60%	80%	100%
CH02-16	VAc26	Monitoring (flowmeter)	20%	40%	60%	80%	100%
CH04-01	VAc26	GIS data modelling	20%	40%	60%	80%	100%
CH04-03	VAc26	GIS data modelling	20%	40%	60%	80%	100%
CH05-07	VAc26	Formula and local data	20%	40%	60%	80%	100%
CH07-03	VAc26	Monitoring	20%	40%	60%	80%	100%

Table 2.21: KPIs and data collection systems identification and status for Electro-wetland.

KPI	KPI	Period for baseline data collection	Percentage covered
CH02-04	ABSORPTION CAPACITY (m3/m2)	24 months	0%
CH02-06	TEMPERATURE REDUCTION	24 months	0%
CH02-12	NUTRIENT ABATEMENT (Chemical Oxygen Demand, COD)	24 months	0%
CH02-13	NUTRIENT ABATEMENT (Biochemical Oxygen Demand, BOD)	24 months	0%
CH02-14	NUTRIENT ABATEMENT (Total Solids, SST)	24 months	0%
CH02-16	IRRIGATION WATER PROVISION	24 months	0%
CH04-01	GREEN SPACE DISTRIBUTION (m2/capita)	24 months	0%
CH04-03	GREEN SPACE ACCESSIBILITY	24 months	0%
CH05-07	AIR QUALITY MONETARY VALUES	24 months	0%
CH07-03	ENERGY SAVINGS RELATED TO GREEN INFRASTRUCTURE	24 months	0%

Table 2.22: Baseline period and percentage covered for Electro-wetland.

## 2.12 Sustainable park

This group of interventions includes: a natural wastewater treatment plant, an educational path, a green filter area, as well as natural pollinator's modules (Vac21) and smart soils as substrate (Vac18).

Sustainable park	VAc13	Natural Wastewater Treatment Plant
	VAc34	Educational path in Wastewater Treatment Plant area
	VAc12	Green filter area

### 2.12.1 Tendering process

#### *Preparation and planning*

2018-2019. Technical pre-engineering design of this group of interventions was pre-defined. Currently the work should be focused on the definition of those characteristics in detail, to deliver a technical project ready to launch the tendering process.

March 2019. Official permission request to the River Duero Basin (CHD, Confederación Hidrográfica del Duero), which is the agency under the Ministry of Agriculture, Fisheries, Food and Environment, responsible for water management in the river Duero basin. This public agency provides the water permission for using treated water.



April -May 2019. The Nature Wastewater Treatment Plant aims to use the treated water for irrigation, so the compliance with law RD 1620/2007 about the reuse of cleanwater is a must (see *section 5. Legal references*). This law establishes among others the process to obtain the permit, the quality water standards to meet, the monitoring periods and reports, the allowed uses of the treated water and the duration of the license. This applies, in general, for all types of reuse of clean water.

On May 2019, Valladolid City Council received the answer from the Duero River Basin Authority regarding the permission request: the derivation of part of the collector's waters for partial or total treatment would run counter to principles of efficiency in the management of public resources. In addition, the River Duero Basin Authority considers that the location is not suitable, as the recreational area where it is expected to install the natural waste water treatment plant (Las Contiendas park) could be affected by bad smells, insect proliferation, botulism outbreaks and may cause possible human health problems and environmental risks. Therefore, the permission for the NWTP in Las Contiendas has been rejected.

July-November 2019. Valladolid City Council, Aquavall, CENTA and CARTIF are looking for another location and a different installation scheme to meet River Duero Basin requirements. The alternative under analysis consists of a detention basin beside the stormwater tank in Santander Avenue, allocated far away from the UGU SubDemo sites. The stormwater tank, which receives combined sewer from the surroundings (some housing, industrial area), overflows to the Pisuerga river during rain events. This detention basin would manage the CSO overflows, increasing the hydraulic capacity of the stormwater tank and improving the quality of the effluent before its discharge into the river

### 2.12.2 Execution of works

Implementation works have not been started. Activities are expected to be implemented over the 2020.

### 2.12.3 Deviations

Permission for the intervention *VAc13-Natural wastewater treatment plant* in Las Contiendas park location has been rejected by the River Duero Basin (Confederación Hidrográfica del Duero), both taking wastewater from the collector and reusing treated water for irrigation. As a consequence, if there will not exist any green area to be irrigated with treated water, then *VAc12-Green filter* will be also cancelled.

The Consortium (CAR, VAL, CEN) is working hard to develop an alternative to these initial proposals in another location, based on the management of combined sewer overflows. The alternative solution is considered to be placed next to an existing stormwater tank, in Santander Avenue, allocated far from the UGU SubDemo sites. However, technical characteristics and expected impacts will not be the same than the initially studied NWTP. The alternative solution will not be a wastewater treatment plan, but a detention basin designed as a SUDs technique, while providing quality and quantity treatment of CSOs.

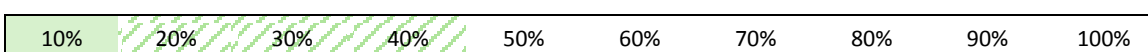


### 2.12.4 Highlights

There is no clear regulation about these types of interventions in urban soil, where the needs of water treatment of dirty waters are already solved through municipal plants. In addition, the process to get the necessary permits for treated wastewater reuse for irrigation of public areas is not easy. This situation could delay the final implementation period for the sustainable park, which is not assured yet.

However, these potential problems are allowing different areas of city council and stakeholders to work together to solve them, creating synergies and facilitating the way for other similar future interventions in the city.

### 2.12.5 Implementation progress status



The performance percentage of the Sustainable Park in Las Contiendas park was 30-50%. The technical project was not completely delivered, but we do have a technical-economic report. However, having obtained a permit refusal by the river basin authority, we have to start a new design in a new location for those group of interventions (10%).

### 2.12.6 Monitoring

KPI	NBS	Type of information collection system	Status of development				
CH01-01	VAc12	Local data	20%	40%	60%	80%	100%
CH01-02	VAc12	Local data	20%	40%	60%	80%	100%
CH01-05	VAc12	Monitoring	20%	40%	60%	80%	100%
CH01-07	VAc12	Monitoring and local data	20%	40%	60%	80%	100%
CH02-01	VAc13	Monitoring	20%	40%	60%	80%	100%
CH02-04	VAc12	Monitoring-Analysis	20%	40%	60%	80%	100%
CH02-06	VAc13	Monitoring	20%	40%	60%	80%	100%
CH02-16	VAc13	Monitoring	20%	40%	60%	80%	100%
CH04-11	VAc13	App	20%	40%	60%	80%	100%
CH05-07	VAc12, VAc13	Formula and local data	20%	40%	60%	80%	100%
CH07-03	VAc12, VAc13	Local data	20%	40%	60%	80%	100%
CH09-02	VAc12, VAc13	Monitoring and software assistance	20%	40%	60%	80%	100%
CH09-03	VAc12, VAc13	Monitoring	20%	40%	60%	80%	100%
CH10-03	VAc13	City official data, city platforms, questionnaires, small-medium enterprise accounts	20%	40%	60%	80%	100%

Table 2.23: KPIs and data collection systems identification and status for Sustainable park.

KPI	KPI	Period for baseline data collection	Percentage covered
CH01-01	Ton CO2 CARBON REMOVED per Ha	12 months	0%
CH01-02	Ton CO2 CARBON REMOVED per year	3 years	0%
CH01-05	TEMPERATURE DECREASE	12 months	0%



CH01-07	HEATWAVE RISK	12 months	0%
CH02-01	RUN-OFF COEFFICIENT	12 months	0%
CH02-04	ABSORPTION CAPACITY (m3/m2)	3 years	0%
CH02-06	TEMPERATURE REDUCTION	12 months	0%
CH02-16	IRRIGATION WATER PROVISION	12 months	0%
CH04-11	GREEN INFRASTRUCTURE CONNECTIVITY	4 months	0%
CH05-07	AIR QUALITY MONETARY VALUES	5 years	0%
CH07-03	ENERGY SAVINGS RELATED TO GI	12 months	0%
CH09-02	WALKING AREA INCREASE	12 months	0%
CH09-03	CYCLING AREA INCREASE	12 months	0%
CH10-03	JOB CREATION	3 years	0%

Table 2.24: Baseline period and percentage covered for Sustainable park.

In section 2.4. there are some images of monitoring equipment for water interventions.

## 2.13 Floodable park Urban carbon sink

In the East of the city, in Santos-Pilarica neighbourhood beside the Esgueva river, there was planned to implement the Floodable Park. This new urban park included a group of interventions: *VAc11-floodable park*, *VAc35-Educational path* and *VAc7-Urban carbon sink*, among others like one *Vac6-Green resting area*, the green corridor (*VAc1-Cycle lane*), urban farming activities (*Vac31*, *Vac32*, *VAc33*, *Vac36* in Santos-Pilarica orchards), *VAc21-Natural pollinator's modules* and *Vac18-Smart soil*.

Urban carbon sink	VAc11	Floodable park
	VAc7	Urban Carbon Sink
	VAc35	Educational path in floodable park area

The implementation of the floodable park was cancelled. An extensive report prepared by the Duero River Basin Authority (CHD, October 2018) shows that the risks of the flooding park outweigh the proposal's benefits. The results of CHD indicate that in the event that the flooded park is filled with water, due to the permeability of the terrain, it is very possible that the water affects the foundations of the buildings built in the surroundings (Santos-Pilarica neighbourhood). A possible solution would be to waterproof the entire base of the park, which is technically difficult and financially unviable.

But *Vac11-Floodable park* was the core of the "Floodable park area" in Valladolid, together with other interventions described. After deep studies, River Duero Basin [CHD] do not recommended constructing the Floodable park in the selected plot, so this intervention was cancelled. The rest of the interventions in Sub-Demo C3 area and surroundings will be constructed as it was planned. The Floodable park area will be substituted by the "Urban Carbon Sink Park", that will demonstrate other URBAN GreenUP interventions.



### 2.13.1 Tendering process

#### *Preparation and planning*

There are other interventions apart from the *Vac11-Floodable park* that are still being implemented, as it is detailed in the respective deliverables (D2.3, D.2.4, D2.5). The educational path of the floodable park area will be adapted and focused on the other interventions (urban carbon sink, natural pollinator's modules and smart soils as substrate) to show their benefits and promote ecological understanding and intelligence among citizens and the local community.

The cancellation of the *Floodable park* has other consequences for the implementation process. River Duero Basin [CHD] was in charge of designing the Floodable park and preparing the technical project that is the basis of the tendering processes. The cancellation of the floodable park released CHD from working on delivering the project, so there has been taken an alternative solution. Valladolid City Council has taken responsibility on that.



The first step is to contract a company that develops the construction project of the *Urban carbon sink* and its elements. This is a first public bidding process (minor service contract <15.000 €). It is the same project as the cycle lane (see section 2.1.1 and 2.1.2 for further details)

### 2.13.2 Execution of works

Implementation works have not started. It is foreseeable a delay in the implementation, along 2020.

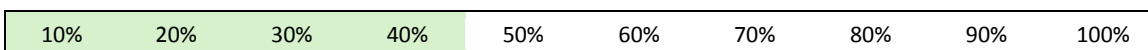
### 2.13.3 Deviations

As it is explained, River Duero Basin [CHD] do not recommended constructing the Floodable park in the selected plot, and no other available municipal plot with the same characteristics has been found. Partners involved in this action did not find reliable alternatives to technical issues or alternative locations.

### 2.13.4 Highlights

All the partners involved in the implementation of the Floodable Park have worked to make the project go ahead. Although finally the action has been cancelled, it is noteworthy the group work of all the partners involved, as well as agents and external institutions: lessons learned, improved relationships, benefitting future joint working...

### 2.13.5 Implementation progress status



### 2.13.6 Monitoring

The cancellation of the *Floodable park* has other consequences for the Monitoring programme. The KPIs related with flood will not be calculated for this interventions (Challenge 2. Water interventions).





The monitoring programme will be updated with the new proposal. The following table shows the KPIs regarding the remaining actions.

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH01-01	VAc7	Formula	20%	40%	60%	80%	100%
CH01-02	VAc7	Formula	20%	40%	60%	80%	100%
CH01-05	VAc7	Measuring device and formula	20%	40%	60%	80%	100%
CH01-07	VAc7	Measuring device	20%	40%	60%	80%	100%
CH02-04	VAc7	Analysis with statistical data	20%	40%	60%	80%	100%
CH02-05	VAc7	Analysis with statistical data	20%	40%	60%	80%	100%
CH02-06	VAc7	Measuring device	20%	40%	60%	80%	100%
CH04-01	VAc7	GIS data modelling	20%	40%	60%	80%	100%
CH04-03	VAc7	GIS data modelling	20%	40%	60%	80%	100%
CH04-11	VAc7	GIS data modelling	20%	40%	60%	80%	100%
CH05-02	VAc7	Measuring device	20%	40%	60%	80%	100%
CH05-03	VAc7	Measuring device	20%	40%	60%	80%	100%
CH05-07	VAc7	Formula and local data	20%	40%	60%	80%	100%
CH07-03	VAc7	Modelling	20%	40%	60%	80%	100%
CH07-05	VAc7	APP	20%	40%	60%	80%	100%
CH08-01	VAc7, VAc35	Analysis with statistical data	20%	40%	60%	80%	100%
CH08-02	VAc35	Surveys, inventory	20%	40%	60%	80%	100%
CH08-03	VAc35	Surveys, inventory	20%	40%	60%	80%	100%
CH09-02	VAc7, VAc35	APP	20%	40%	60%	80%	100%

Table 2.25: KPIs and data collection systems identification and status for Urban carbon sink.

KPI	KPI	Period for baseline data collection	Percentage covered
CH01-01	Ton CO2 CARBON REMOVED per Ha	24 months	0%
CH01-02	Ton CO2 CARBON REMOVED per year	24 months	0%
CH01-05	TEMPERATURE DECREASE	24 months	0%
CH01-07	HEATWAVE RISK	24 months	0%
CH02-04	ABSORPTION CAPACITY (m3/m2)	24 months	0%
CH02-05	ABSORPTION CAPACITY (m3/tree)	24 months	0%
CH02-06	TEMPERATURE REDUCTION	24 months	0%
CH04-01	GREEN SPACE DISTRIBUTION (m2/capita)	24 months	0%
CH04-03	GREEN SPACE ACCESSIBILITY	24 months	0%
CH04-11	GREEN INFRASTRUCTURE CONNECTIVITY	24 months	0%
CH05-02	ANNUAL MEAN LEVELS OF FINE PM2.5 PARTICULES	24 months	0%
CH05-03	ANNUAL MEAN LEVELS OF FINE PM10 PARTICULES	24 months	0%
CH05-07	AIR QUALITY MONETARY VALUES	24 months	0%
CH07-03	ENERGY SAVINGS RELATED TO GREEN INFRA	24 months	0%
CH07-05	CITIZEN PERCEPTION	24 months	0%
CH08-01	CRIME REDUCTION	24 months	0%
CH08-02	GREEN INTELLIGENCE AWARENESS (educational act)	24 months	0%
CH08-03	GREEN INTELLIGENCE AWARENESS (inhabitants)	24 months	0%



CH09-02 WALKING AREA INCREASE	24 months	0%
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Table 2.26: Baseline period and percentage covered for Urban carbon sink.

## 2.14 Urban orchards

This group of Nature Base Solutions aims to improve the existing orchard areas (Vac31), install *community composting* (Vac32), an *small-scale urban livestock* (Va33), and the realization of urban farming educational activities (VAc36). In the same orchards there will be implemented other NBS such as *Natural pollinator modules* (VAc21, 3 in Parque Alameda orchard) including *Smart soils as substrate* (Vac18).

Urban orchard	VAc31	Urban orchard	C3-C4	Santos-Pilarica & Parque Alameda
	VAc32	Community composting	C4	Parque Alameda
	VAc33	Small-scale urban livestock	C4	Parque Alameda
	VAc36	Urban Farming Educational activities	C3-C4	Santos-Pilarica & Parque Alameda

The Environment Area of Valladolid City Council currently manages the municipal urban orchards. The entity that operates the municipal orchard is INEA Foundation – *Instituto Nevares de Enseñanzas Agrícolas*. The Innovation Agency [VAL] had many meetings with different relevant stakeholders regarding the orchards: with the Environmental Area of the same Council, INEA, the opinion of unemployed people who use the orchards and the opinion of neighbours.

### 2.14.1 Tendering process

#### *Preparation and planning*

The improvements of Santos Pilarica and Parque Alameda orchards (under the URBAN GreenUP GA) will deploy two actions: Drip irrigation system for the sustainable use of water, and green shady areas to be implemented in common spaces (Vac31). Those improvements are current user’s identified needs.

Technical and administrative specifications of contract procedures are being already detailed (November-December 2019). We are currently finalizing the technical descriptions of VAc31, Vac32 and VAc33 that will be used to launch several public purchase contracts.

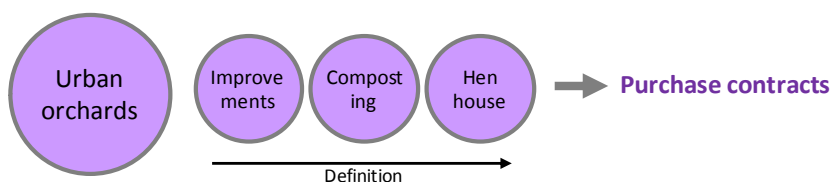


Figure 2.9: Implementation process for the Urban orchards interventions

Valladolid City Council already develops educational activities related with urban farming. For this, the suggestions and contributions from schools, educational experts and neighbours will be taken into account regarding the development of educational and social contents. The design of urban farming activities follows the criteria of Municipal program "Cultivating Environmental Education: School Orchards of Valladolid".

### 2.14.2 Execution of works

The tendering process does not include the installation. The installation will be delivered by INEA and the current orchard users. Purchase contracts are expected to be launched at the end of 2019 beginning 2020.

The specific *Education activities* (VAc36) will be launched after the implementation of the technical issues (improvements, composting facilities and the hen house). Those activities will not be subcontracted. They will be organized by the UGU partners, such as Valladolid City Council and CARTIF.

### 2.14.3 Deviations

No significant deviations detected.

### 2.14.4 Highlights

The participation of different stakeholders during the design stage has been essential and will be necessary along the activity development to guarantee the right management of these NBS interventions, so the progress of co-creation activities regarding this intervention is appropriate.

This activity has important effects of social cohesion, builds a stronger appreciation for life (Biophilia concept) and has an educational impact those participating. Many of them are aimed at the social integration of groups such as the unemployed. It is estimated that more than 1,000 people will directly benefit from it, which will mean an improvement in the living conditions in neighbourhoods and the creation of new jobs (paid by users). These activities include mechanisms to donate products obtained.

The City Council plans to install composting facilities in the fourth orchards, apart from those two related to the URBAN GreenUP project. The composting facilities will be accessible to all citizens to involve them in this task:

- Municipal recycling points (food scrap);
- Near schools and educational centres; and
- Operation of the Parks and garden Services (pruning).

The installation of the small-scale urban livestock has an important educational component. It is intended to involve the citizens in the care of the hens. The idea is that, weekly, a family or neighbour will take care of the animals in exchange for being able to collect all the eggs during that time. The animals are always very well received by the children, with several educational activities undertaken here.

### 2.14.5 Implementation progress status



### 2.14.6 Monitoring

KPI	NBS	Type of information collection system	Status of development				
CH04-04	Vac33, Vac36	APP and statistical data (Nº urban orchard's users; Nº participants)	20%	40%	60%	80%	100%
CH04-08	Vac31, Vac32, Vac33	Statistical data from questionnaires (food produced)	20%	40%	60%	80%	100%
CH06-04	Vac31, Vac32, Vac33	Analysis and statistical data	20%	40%	60%	80%	100%
CH10-01	Vac31, Vac32	Analysis and statistical data	20%	40%	60%	80%	100%
CH10-03	Vac31, Vac32, Vac33	Questionnaires	20%	40%	60%	80%	100%
CH10-05	Vac31, Vac32, Vac33	Questionnaires	20%	40%	60%	80%	100%

Table 2.27: KPIs and data collection systems identification and status for Urban orchards.

KPI	KPI	Period for baseline data collection	Percentage covered
CH04-04	RECREATIONAL VALUE	24 months	0%
CH04-08	FOOD PRODUCTION	24 months	0%
CH06-04	BENEFITS FROM INTERVENTIONS	6 months	0%
CH10-01	SUBSIDIES	6 months	0%
CH10-03	JOB CREATION	6 months	0%
CH10-05	NEW BUSINESSES	6 months	0%

Table 2.28: Baseline period and percentage covered for Urban orchards.

### 2.15 Pollinator's modules

A total of 13 units of *Compacted pollinator's modules* and 6 units of *Natural pollinator's modules* are planned to be located in several locations of Valladolid and city centre, including smart soils as substrate.

Pollinator's modules	VAc20	Compacted Pollinator's modules (B.)	B	B.- City center
	VAc19	Natural pollinator's modules (A.)	A	A.- Green corridor
	VAc21	Natural pollinator's modules (6)	C2	6 ud C2- Sustainable Park (Wastewater Plant zone)
	VAc21	Natural pollinator's modules (6)	C3	6 ud C3- Floodable Park (La Esgueva River zone)
	VAc21	Natural pollinator's modules (3)	C4	3 ud C4- Alameda Park zone (Urban Farming activities)
	VAc21	Natural pollinator's modules (15)	C2-C3-C4	C2.- Sustainable park + C3.- Floodable park + C4.- Urban orchard

#### 2.15.1 Tendering process

##### *Preparation and planning*

Technical specifications have been already defined: the plants species (bushes and aromatic species) that will constitute the modules are selected according to Valladolid's characteristics. The modules will also have housing, among other necessary elements, for biodiversity. Technical and administrative specifications of contract procedures are being detailed.





As it is said before, a Landscape project will be subcontracted to define final designs and locations of the Pollinator's modules. This project includes the Cycle lane, the Urban carbon sink and Pollinator's modules (see *section 2.1.1* and *Figure 2.1.* for further details).

### 2.15.2 Execution of works

Implementation works have not been started. The pollinators are expected to be implemented over the years 2019 and 2020.

### 2.15.3 Deviations

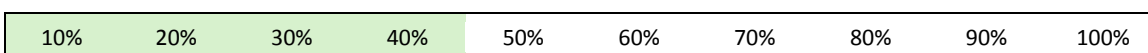
There is not any significant deviation.

### 2.15.4 Highlights

These pollinators will be installed in the centre of the city and in the peri-urban areas. They might be sponsored by businesses, companies or neighbours, who in exchange for their support can benefit from the publicity that with it will obtain from their businesses (see *section 3.2. VAc38 Sponsoring activities*). The impact of this action on the citizens will be very important and positive and therefore citizens will be involved in the respect and care of the urban biodiversity.

The pollinator's installations could be a problem of social acceptance, due to the presence of bees, wasps and other insects, so the information about the associated benefits and the development of related increasing awareness activities are important.

### 2.15.5 Implementation progress status



### 2.15.6 Monitoring

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH04-12	Vac19, VAc20, Vac21	Visual inspections	20%	40%	60%	80%	100%
CH02-04	Vac16, Vac17, VAc18	Other: Analysis	20%	40%	60%	80%	100%

Table 2.29: KPIs and data collection systems identification and status for Pollinator's modules.

KPI	KPI	Period for baseline data collection	Percentage covered
CH04-12	POLLINATOR SPECIES INCREASE	4 months	0%
CH02-04	ABSORPTION CAPACITY (m3/m2)	4 months	0%

Table 2.30: Baseline period and percentage covered for Pollinator's modules.



## 2.16 Smart soils as substrate

Smart soils (VAc16, VAc17, VAc18) are used as substrate for many nature-based solutions implemented in the URBAN GreenUP project.

Smart soils	VAc16	Smarts soils as substrate for <i>Vac2- Trees; Vac15- Cycle-pedestrian green paths &amp; Vac19- Pollinators mod.(A)</i>	A
	VAc17 (Vac6)	Smarts soils for GI (B) VAc6, Vac20, Vac29	B
	VAc17 (Vac20)	Smarts soils for GI (B) VAc6, Vac20, Vac29	B
	VAc18 (A)	Smarts soils as substrate (A)	A
	VAc18 (C1)	Smarts soils as substrate (C1.)	C1
	VAc18 (C2)	Smarts soils as substrate (C2.)	C2
	VAc18 (C3)	Smarts soils as substrate (C3.)	C3
	VAc18 (C4)	Smarts soils as substrate (C4.)	C4

### 2.16.1 Tendering process

#### *Preparation and planning*

We expect to buy the whole quantity of smart soils (983 m<sup>3</sup>) in a single public supply contract, and then deliver the soil among the interventions (see next section). This change in the PPP plan delivered in *D2.5 Tendering processes* will facilitate the public purchase. Maximum budget is 70.000 € for the three interventions.

### 2.16.2 Execution of works

The application of the soil will meet the following distribution:

VAc16	Smarts soils as substrate for <i>Vac2- Trees; Vac15- Cycle-pedestrian green paths &amp; Vac19- Pollinators mod.(A)</i>	A	A.- Green corridor	m <sup>3</sup>
VAc2	Planting 1,000 trees	A	With each unit tree	126
VAc15	Cycle-pedestrian green paths	A	n/d, maybe 3 green paths	126
VAc19	Natural pollinator's modules	A	6 units	126
				378 m <sup>3</sup>
VAc17	Smarts soils as substrate for GI (B)	B	B.- Center	m <sup>3</sup>
VAc6	Installation of 3 Green Resting areas	A	1/3 green resting areas (in zone B)	20
VAc20	Compacted Pollinator's modules	B	13 units (1,5 m <sup>3</sup> / module)	20
				40 m <sup>3</sup>
VAc18	Smarts soils as substrate in Wastewater plant zone (C.)	C1-C3	C2.- Football Std area + C3.- Floodable park (Carbon sink)	m <sup>3</sup>
VAc14	Green Parking Pavements	C1	Car parking	200
VAc5	Re-naturing parking trees (250)	C1	With each unit tree	40
VAc6	Installation of 3 Green Resting areas	A	1/3 green resting areas (zone C1)	20
VAc21	Natural pollinator's modules (6)	C2-C3- C4	15 units	45
				6 units in C2
				18
				6 units in C3
				18
				3 units in C4
				9
VAc7	Urban Carbon Sink	C3	Floodable park (C3)	240



VAc6	Installation of 3 Green Resting areas	A	1/3 green resting areas (C3)	20
				565 m <sup>3</sup>

Table 2.31: Distribution of Smart soils (volume)

### 2.16.3 Deviations

There are several changes in the distribution of the Smart soils according to the Grant Agreement. However, global quantities of smart soil remain the same.

Vac16 is defined in the Grant Agreement as *Vac16- Smarts soils as substrate for cycle-pedestrian green paths, pollinators mod. & green shady structures (A)*, which are VAc15, VAc19 & VAc6 (A) respectively. However, VAc16 in SubDemo A is added to *Vac2- Trees*; *Vac15- Cycle-pedestrian green paths* & *Vac19- Pollinators mod.*

Vac18 is defined in the Grant Agreement as *Vac18-Smarts soils as substrate for green singular infrastructure (B)*, for Vac6, Vac20 and Vac29, but *Vac29- Green Shady Structures* have an special substrate that is not soil (green canopies). This soil is distributed in other NBS.

Vac18 is defined in the Grant Agreement as *Vac18-Smarts soils as substrate in Wastewater plant zone (C3)*. However, this soil is added also to other locations such as the *Vac6-Green resting area (C1)* or the Natural pollinator's modules (C2, C3, C4).

### 2.16.4 Highlights

The Smart soil can be stored in the manufacturer's facilities and used when needed. The public purchase of this supply facilitates the administrative process of public tendering (that are slow and complicated).

### 2.16.5 Implementation progress status

10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
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### 2.16.6 Monitoring

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH01-01	Vac16, Vac17, Vac18	Formula	20%	40%	60%	80%	100%
CH01-05	Vac16, Vac17, Vac18	Measuring device and formula	20%	40%	60%	80%	100%
CH02-04	Vac16, Vac17, Vac18	Analysis	20%	40%	60%	80%	100%
CH05-02	Vac16, Vac17, Vac18	Measuring device	20%	40%	60%	80%	100%
CH05-05	Vac16, Vac17, Vac18	Public data collection	20%	40%	60%	80%	100%
CH05-07	Vac16, Vac17, Vac18	Formula and local data	20%	40%	60%	80%	100%
CH07-03	Vac16, Vac17, Vac18	Modelling	20%	40%	60%	80%	100%

Table 2.32: KPIs and data collection systems identification and status for Smart soils as substrate.



KPI	KPI	Period for baseline data collection	Percentage covered
<b>CH01-01</b>	Ton CO2 CARBON REMOVED per Ha	24 months	0%
<b>CH01-05</b>	TEMPERATURE DECREASE	24 months	0%
<b>CH02-04</b>	ABSORPTION CAPACITY (m3/m2)	Punctual measure	0%
<b>CH05-02</b>	ANNUAL MEAN LEVELS OF FINE PM2.5 PARTICULES	24 months	0%
<b>CH05-05</b>	MEAN LEVELS OF EXPOSURE TO AIR POLLUTION	24 months	0%
<b>CH05-07</b>	AIR QUALITY MONETARY VALUES	24 months	0%
<b>CH07-03</b>	ENERGY SAVINGS RELATED TO GREEN INFRASTRUCT.	24 months	0%

Table 2.33: Baseline period and percentage covered for for Smart soils as substrate.





### 3 Non-Technical Interventions

The following non-technical interventions are included in the implementation processes of previous sections (please see *Table 1.2*)

- VAc34- Educational path in wastewater treatment plant area.
- VAc35- Educational path in floodable park area.
- VAc36- Urban farming educational activities (See section 2.14).

In addition to the actions that appear in the following sections, engagement, educational activities, city coaching and support activities have been made in the different processes of implementation of the technical interventions. Descriptions are included in the "Highlights " sections.

#### 3.1 Engagement Portal for Citizens

##### 3.1.1 Execution of activities

The web space link for the project at the local level is the following: [www.valladolidadelante.es/node/12344](http://www.valladolidadelante.es/node/12344) This webspace is managed by the Innovation Agency of Valladolid City Council [VAL], who manages the URBAN GreenUP project in Valladolid.

The Innovation Agency Communication Department uses its own website and social media to communicate aspects of the project [www.valloldiadelante.es](http://www.valloldiadelante.es) This website is independent of the main City Council website [www.valladolid.es](http://www.valladolid.es)

The Innovation Agency website will be modified, a more dynamic, modern and current website is planned (2018-2020). Currently, the technical and administrative specifications are being defined to launch a tendering process of the contract for the creation and management

##### Contacta al equipo de Valladolid

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services of the new agency website. Thus, this new contract might be used to create an active engagement portal for citizens to know, comment, attend and take part in the project activities. However, people who wants to contact easily finds contact data in the UGU website.

In this period, other resources have been used to fulfil the objectives of engagement of this action:

- creation of a twitter hashtag "Re-naturing Valladolid" #renaturalizavalladolid, by the Communication Department of the Innovation Agency in May 2018;
- use of social networks: Facebook, Twitter, Instagram... to inform and engage citizens in activities; [www.twitter.com/INNOLID](https://www.twitter.com/INNOLID) [www.facebook.com/VLDAdelante](https://www.facebook.com/VLDAdelante)
- use of the website of Valladolid City Council and the Innovation Agency to publish news on topics related to the project; and
- creation of an email [ugu@ava.es](mailto:ugu@ava.es) where the citizens can directly address questions and ideas related to the project.



**TREES OF VALLADOLID WEBSITE.** 7<sup>th</sup> September 2018 [www.arbolesdevalladolid.com](http://www.arbolesdevalladolid.com)

Creation of a public suitable trees catalogue for Valladolid, with two sections:

- Low species allergic impact and low water consumption catalogue: recommended species, allergic impact of trees and plants, trees and irrigation needs; and
- Unique trees of the city: location map, tree index, tree species catalogue, pruning questions.

### 3.1.2 Implementation progress status

10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
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### 3.1.3 Monitoring

KPI	NBS	Type of information collection system	Status of development				
CH08-03	VAc39	Analysis, inventory	20%	40%	60%	80%	100%

Table 3.1: KPIs and data collection systems identification and status: Engagement Portal for Citizens.

KPI	KPI	Period for baseline data collection	Percentage covered
CH08-03	GREEN INTELLIGENCE AWARENESS (inhabitants attended, nº visits to the website)	24 months	0%

Table 3.2: Baseline period and percentage covered for Engagement Portal for Citizens.

## 3.2 Sponsoring activities

In section 5.2 *Sponsoring activities* of D2.3 *Technical specifications of Valladolid Demo*, three different types of sponsoring activities are considered: URBAN GreenUP sponsorship in events; URBAN GreenUP sponsorship in other related projects; and the Sponsor a “Nature-Base Solution” initiative. The first two activity groups correspond to sponsorships or collaborations carried out by Valladolid City Council in events or projects through the URBAN Green UP. Taking into account the projects and events characteristics described in these categories in D2.3 and the involvement of the City Council in them, these activities have been reclassified as other non-technical actions, in which they fit better. In particular: VAc39- *Promotion of ecological reasoning and ecological intelligent*, Vac41- *Support to citizen project of NBS*, and VAc42- *City mentoring strategy*.

The third activities’ group, *Sponsor a “Nature-Base Solution” initiative*, corresponds with the collaboration of citizens or private companies for the implementation of NBS through its sponsorship. In fact, the description of the NBS contained in the Grant Agreement refers only to the promotion of sponsorships through which citizens can adopt or sponsor a green infrastructure. Thus, this section will take into account the activities of sponsorship of private entities or citizens in the implementation of the NBS



### 3.2.1 Execution of activities

The involvement of the private sector in the project is also being raised through the sponsorship of certain NBS. The *Sponsor a "Nature-Based Solution" initiative* considers:

- Sponsor a tree;
- Sponsor a mobile vertical garden;
- Sponsor a Pollinator.
- Others.

In this way, the private sector is interested in the project, while ensuring the care of these interventions.

Currently the City Council of Valladolid is defining the legal framework to make these agreements with traders close to the project locations, as well as different meetings with interested traders are being established. Successful cases are the following:

- Co-financing the Green Façade (VAc25). Private entity: El Corte Inglés. An agreement signed between Valladolid City Council and El Corte Inglés (May 2018) manages the conditions.
- Co-operation of the Biofilter (VAc30). Private entity: Aparcamientos españoles. This company allowed installing the Biofilter in the underground car parking in Plaza Zorrilla that they operate.

### 3.2.2 Implementation progress status



More sponsoring cases throughout the project (2022) are planned to be implemented. The previous experiences will increase the agreements effectiveness and the number of private stakeholders involved.

### 3.2.3 Monitoring

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH07-01	Vac38	Analysis, statistical data	20%	40%	60%	80%	100%
CH08-02	Vac38	Analysis, statistical data	20%	40%	60%	80%	100%
CH10-01	Vac38	Analysis, statistical data	20%	40%	60%	80%	100%

Table 3.3: KPIs and data collection systems identification and status for Sponsoring activities.

KPI	KPI	Period for baseline data collection	Percentage covered
CH07-01	OPENNESS	24 months	0%
CH08-02	GREEN INTELLIGENCE AWARENESS (nº educational actions)	24 months	0%
CH10-01	SUBSIDIES	24 months	0%

Table 3.4: Baseline period and percentage covered for Sponsoring activities.



### 3.3 Promotion of Ecological Reasoning and Ecological Intelligent

#### 3.3.1 Execution of activities

##### *Thematic meetings.*

**URBAN ECOSYSTEMS FORUM, CENCYL+ project.** Salamanca (Spain), 22nd November 2017. Sharing experiences with URBAN GreenUP of Valladolid. Participation of Jesús Gómez. Innovation Agency, Valladolid City Council.

**MICHELIN CITIES NETWORK MEETING.** Clermont Ferrand (France), 29 November-1st December 2017. Launch of the International Michelin cities network involving 40 cities, 20 countries across 4 continents. Rosa Huertas Gonzalez, from the Valladolid City Council, presents the URBAN GreenUP project.



Figure 3.1: URBAN GreenUP engagement in Michelin Cities Meeting (Source: Valladolid City Council)

**LA CIUDAD IMAGINADA.** Valladolid (Spain), 1-2-3 December 2017. Citizen meeting space to generate proposals for the improvement of Valladolid. The 'Imagined City' was a meeting space that critically and creatively address the transformation process of cities, such as



Valladolid. Representatives of innovative local, national and international projects met in Valladolid to exchange ideas, debate and build, collectively, new proposals and alternatives in areas such as sustainable mobility, education, the use of public spaces, food, art or technology. Participation of Raúl Sánchez (CARTIF) and Alicia Villazán (Valladolid City Council)

<https://www.laciudadimaginada.es/>

Figure 3.2: La Ciudad Imaginada 2017 (Source: El Norte de Castilla)



**EUROCITIES ENVIRONMENT FORUM.** Amsterdam (Holland), 4-7 April 2018. Workshop about the URBAN GreenUP project in the city of Valladolid, for professionals, technicians and politics of many City Councils in Europe. Participation of Rosa Huertas González and Alicia Villazán Cabero, Valladolid City Council.

Figure 3.3: Eurocities environment forum 2018 (Source: VAL)



**"DAY OF THE EARTH" AND "DAY AGAINST NOISE"**. Valladolid (Spain), 23-26 April 2018. Information desk for the citizens of Valladolid about the URBAN GreenUP Project. The stand was located in the city centre of Valladolid, in El Campillo social centre.



Figure 3.4: URBAN GreenUP stand for the Day of Earth 2018 (Source: Valladolid City Council)

**CONTEST "RE-NATURING YOUR CITY"**. Valladolid (Spain), April-May 2018. This was a participative contest in which citizens propose ideas for improvement the city on aspects of urban restoration and resilience to climate change, as well as related to sustainability and the use of public spaces improvement. The ideas were accompanied by graphic or media of any kind, such as models, posters, collages, pictures, photomontages, reports or others. The contest was open to the general public, not necessarily to specialized business: neighbourhood communities, educational centres, cultural associations. The topics were related to URBAN GreenUP project NBS. At the end of the participation process there was an event to present the citizen's ideas, with an awards ceremony. That event was celebrated during the European Green Week (week 25th May 2018). The idea of this contest is to launch it periodically.



Figure 3.5: Poster of the contest "Re-naturing your city" 2018 (Source: Valladolid City Council)

**CONFERENCE ON URBAN FORESTS AND HEALTH IN CITIES. NEW PERSPECTIVES.** Madrid (Spain), 7<sup>th</sup> June 2018. The year 2018 has been declared by FAO as the International Year of Urban Forests, so the Ministry of Agriculture and Fisheries, Food and Environment prepared a conference on Urban Forests and Health. Rosa Huertas González, from the Valladolid City Council, presented the URBAN GreenUP project.

**1<sup>ST</sup> EDITION OF INNOVATION AND TECHNOLOGY FOR THE WATER SECTOR EXHIBITION – H2ORIZON.** Sevilla (Spain), 19-21 September 2018. During the event, the project partner 'Fundación Centro de las Nuevas Tecnologías del Agua' CENTA was based in the Regional



Ministry of Environment of the Andalusian Government stand, offering and showing flyers and leaflets related to the project.



Figure 3.6: H2ORIZON flyers and CENTA participation (Source: CENTA)

**BY&FORCITIZENS CONGRESS.** Valladolid (Spain), 20-21 September 2018. CARTIF organized the BY&FORCITIZENS conference on “Smart Regeneration of Cities and Regions”. The objective was to provide a forum to gain comprehensive insights into the opportunities and challenges conferred by further development of Smart Cities and Communities initiatives across Europe. The overall aim was to review and better understand the steps that city leaders, delegates, policymakers and other relevant stakeholders around Europe take to transform their cities into great and attractive places in which to live and work, creating strong local ecosystems ([www.byforcitizens.com](http://www.byforcitizens.com)). Valladolid City Council participated as co-organizer.



Figure 3.7: BY&FORCITIZENS event info (Source: [www.byforcitizens.com/es/#colaboradores](http://www.byforcitizens.com/es/#colaboradores) )

**INFODAY H2020, CHALLENGE 5.** Huelva (Spain), 13 November 2018. Organised by CDTI (Centre for Technological Development of Industry) and the Andalusian Agency of Knowledge, the partner CENTA presented the Urban GreenUP project as an example of a successful H2020 proposal.

**ENTREPRENEURSHIP ROUTE.** Valladolid (Spain), academic year 2018-2019. In this route, organized by the Innovation Agency to encourage youth entrepreneurship, about 700 students from 17 schools participated. Young people had the opportunity to learn about the reality of 15 companies, an occasion that helped them to create their projects, most of them related to sustainability, technology and research and innovation projects. All the groups now know about the URBAN GreenUP project thanks to the projection of the video of the animated infographics. <http://www.valladolidadelante.es/node/13410>



**II INTERNATIONAL COURSE OF SELECTION OF TECHNOLOGIES AND DESIGN OF SEWAGE TREATMENT PLANTS. MODULE V: REUSE OF TREATED WASTEWATER.** La Paz (Bolivia), 25- 27 March 2019. An international course on ‘wastewater treatment plants, selection of technologies and design’ took place in Bolivia. The CENTA Foundation was part of the organising committee, and explained its role in the URBAN GreenUP project. Professionals in related fields attended the course.

**XX UNIVERSITY-ENTERPRISE CONFERENCE “SUSTAINABILITY OF WATER AND SOIL RESOURCES IN AGRICULTURE”.** Córdoba (Spain), 4 April, 2019. Technical day focused on sustainability of water and soil resources in agriculture. The topics discussed during the day were: new technologies for water and energy management in irrigation; applications of renewable energies; reuse of industrial water in agriculture; reuse of urban regenerated water. The partner CENTA Foundation described the URBAN GreenUP Project.

**KNOWING AND UNDERSTANDING EUROPEAN PROJECTS Conference.** University of Córdoba (Spain), 9 May 2019. Several conferences on understanding the European funding mechanisms took place at the University of Córdoba. In this event, the CENTA Foundation explained its experience in participating in Innovation Actions, citing the URBAN GreenUP project.

**TRAINING WORKSHOP. CIRCULAR WATER ECONOMY: ADAPTATION TO DROUGHT AND SCARCITY MANAGEMENT.** Loulé (Portugal), 16 May 2019. The Municipal Council of Loulé, in the wake of the jobs that have been developed within the Council Monitoring the Municipal Strategy Local Adaptation to Climate Change, held two training workshops in the areas of energy and water. The two workshops were organized in partnership with the Institute of Social Sciences (ICS) of the University of Lisbon, and relying on a diverse range of prestigious speakers, they aimed to disseminate innovative projects and best practices that contribute to adaptation and mitigation to climate change. The CENTA Foundation presented the URBAN GreenUP project.

**NEST BOXES WORKSHOP.** Valladolid (Spain) 17<sup>th</sup> May 2019. The association ACENVA, winner of the Contest of the year 2018 “Re-naturalize your city” has made a workshop for the installation of nest boxes for bats and swifts. The wood comes from the concrete circular economy of wooden pallets for the construction of the nest boxes. They will be installed in public buildings of the city of Valladolid.



Figure 3.8: Poster and participants of the nest boxes workshop (Source: ACENVA)

**UNI-HEALTH FESTIVAL.** Madrid (Spain), 20-21 June 2019. Citizen, students, and developers meeting space to generate proposals to support an active aging and urban health. UNI-Health is a European Exchange and Innovation network for the training of students and researchers, for the production of a base of solutions, technological advances and applications that improve urban health conditions. Specifically, the study was carried out in the "Usera" neighbourhood of Madrid, where the main challenges of urban design and applied technologies to promote healthier cities have been identified. Acciona has participated by presenting of the URBANGreenUP Catalogue on Nature Based Solutions (NBS), and explain on what it brings to the city of the future, finally the participants discussed on how to accelerate and promote that process with the citizens. Link: <http://blogs.upm.es/uni-health>. Participation: Magdalena Rozanska (ACCIONA).



Figure 3.9: URBANGreenUP poster prepared for UNI-Health event in Madrid (Source: ACCIONA)

**6TH CONFERENCE ON WATER ENGINEERING (JIA).** Toledo (Spain), 22-25 October 2019. The JIA are promoted jointly by the Foundation for the Promotion of Water Engineering (FFIA) and the Spanish Chapter of the International Association for Hydro-Environment Engineering and Research (IAHR). The JIA try to expose brilliant and innovative solutions that allow the needs of society to be satisfied in a sustainable and efficient way, improving resilience to extreme and changing scenarios, fostering the circular economy, and within the context of the knowledge society. A paper dealing with some technical NBS activities developed in the URBAN GreenUP framework, will be presented by CENTA Foundation.

**CYCLE OF CONFERENCES "TREES IN THE CITY". Architects for sustainability, COACYLE.**  
**COACYLE / VALLADOLID** Valladolid (Spain), 3 November 2019. In the Cycle of Conferences on "The trees in the city", organized by COACYLE (Architects official college), Valladolid City Council participate with a 2 h conference about URBAN GreenUP: re-naturing Valladolid. The event was open to the public, but mainly architects.





### Engagement the URBAN GreenUP interventions.

**GREEN CANOPIES: Neighbours and Commerce** Valladolid (Spain), 23-26 April 2018. On the 25 of April 2018 Valladolid City Council organized a specific meeting with the neighbours and businesses (shops, restaurants) of Santa María St. The *Vac29-Green Shady Structures* are installed in that street. The event allowed to explain the project and collect comments, complaints and suggestions from interested parties. This action was subcontracted by Valladolid City Council to GEOCYL Consultoría S.L.



Figure 3.10: Specific meeting about Green canopies (Source: Valladolid City Council)

**GREEN COVERING SHELTER: Commerce** Valladolid (Spain), 26 November 2019. Valladolid City Council organized a specific meeting with the businesses of the daily market under the Plaza España canopies (fruit and flowers). The *Vac29-Green Shady Structures* are installed over those 2 canopies. The event allowed to explain the project and collect comments, complaints and suggestions from interested parties.

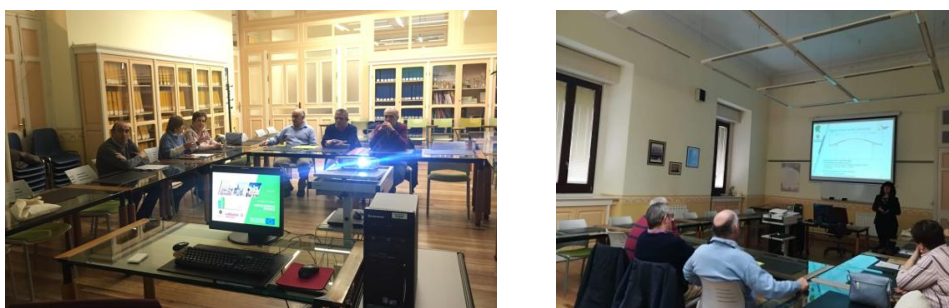


Figure 3.11: Specific meeting about Green covering shelter (Source: Valladolid City Council)

### Other activities.

#### *URBAN GreenUP in Valladolid's tourist rote*

In progress. The tourist route is in process of definition. The objective is to show all the interventions that will be implemented in the city thanks to the project URBAN GreenUP, but will also include other works that have been realized in the city related to energy efficiency, sustainable mobility, smart city. So that, innovation can also become a tourist attraction of the city.

In the BY&FORCITIZENS congress (September 2018), and yearly during the European Mobility Week (September) tourist routes were carried out around the city to show the



implementations in the city through the REMOURBAN H2020 project and the places where the URBAN GreenUP interventions will be implemented. The experience was positive and had a great acceptance by the citizens.

*URBAN GreenUP App*

In progress. GMV is developing a mobile application (URBAN GreenUP APP) to inform about the different NBS that will be implemented and carry out to increase public awareness.

*Diffusion materials and communication activities*

In addition, other communication and dissemination activities have been carried out through social networks (Twitter, Facebook, Instagram, LinkedIn...), television, newspapers, and the City Council and the Innovation Agency websites.



Figure 3.12: URBAN GreenUP in some Valladolid local newspapers (Source: Valladolid City Council)

**3.3.2 Implementation progress status**



**3.3.3 Monitoring**

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH07-05	VAc39, Vac40	APP and statistical data (Satisfaction)	20%	40%	60%	80%	100%
CH08-02	VAc39, Vac40	Analysis, statistical data	20%	40%	60%	80%	100%

Table 3.5: KPIs and data collection systems identification and status for Promotion of Ecological Reasoning and Ecological Intelligent.

KPI	KPI	Period for baseline data collection	Percentage covered
CH07-05	CITIZEN PERCEPTION	24 months	0%
CH08-02	GREEN INTELLIGENCE AWARENESS (nº educational act.)	24 months	0%

Table 3.6: Baseline period and percentage covered for Promotion of Ecological Reasoning and Ecological Intelligent.



### 3.4 Single Window/Desk for RUP Deployment

#### 3.4.1 Execution of activities

Valladolid Local Desk is managed by the Innovation Agency of Valladolid City Council. It was launched in the beginning of the URBAN GreenUP project. The email address is [ugu@ava.es](mailto:ugu@ava.es)

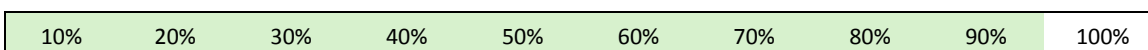
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Figure 3.13: Valladolid local desk in the Innovation Agency (Source: Valladolid City Council)

Valladolid Local Desk is a new system that comprises a major simplification of the re-naturing process concerning technical, administrative and funding aspects in the city of Valladolid, which has been implemented to offer a high potential for local individual initiatives. This Local Desk is a single window opened to communicate with the citizens, receive their comments, requests and information exchange about the URBAN GreenUP project. This non-technical action promotes the collaboration among Valladolid City Council and project stakeholders, such as other city councils. The activities of the Valladolid Local Desk are related to VAc38- *Sponsoring activities*, VAc39- *Promotion of ecological reasoning and ecological intelligent*, VAc41- *Support to citizen project of NBS* and VAc42- *City mentoring strategy*.

#### 3.4.2 Implementation progress status



#### 3.4.3 Monitoring

KPIs and data collection systems for Vac40-Single desk are the same than Vac39-Promotion of ecological reasoning (see section 3.3.3.).

### 3.5 Support to Citizen Project of NBS

Valladolid city Council promotes and facilitated the development of green projects about the implementation of NBS from citizens and private companies.

#### 3.5.1 Execution of activities

##### *Promotion of the implementation of NBS in the city (projects)*

One of the objectives of the Local Desk (VAc40) is to encourage the implementation of NBS projects by citizens and businesses in the city. Different studies of architecture and engineering



of the city have approached the local desk to learn how to implement NBS in the city and establish potential synergies. The following initiatives stand out for their degree of development, as they will surely be projects executed in the city.

**NAIAD H2020 Project/URBAN WATERBUFFER IN VALLADOLID (UWV) Project, 2018-2020.** The project Urban Waterbuffer in Valladolid, supported by the 'Partners voor Water' programme, from Enterprises Agency from the Holland Govern, aims to replicate water management actions that are being carried out in that country. The Sparta Stadium of the city of Rotterdam has implemented a similar system that collects rain water and thanks to a garden designed specifically for water treatment, it allows the recharge of the aquifers in the area, which act as deposits. The water is obtained for irrigation. This intervention is part of the NAIAD Project (H2020).The Holland SME Field Factors leads the project. This model is intended to be reproduced in the football stadium area of Valladolid adapting to the peculiarities of our city, in order to take advantage of rainwater in a closed cycle and to benefit from the advantages of this type of systems, both economic and environment, while revaluing the area. Synergies with URBAN GreenUP project are detailed in *section 2.4. Stormwater management systems*.



Figure 3.14: Meetings in Valladolid with Field Factors and iCatalist (Source: VAL, 2018-2019)

More information: <https://fieldfactors.com/blog/indexphp/urban-waterbuffer-is-open>;  
<https://fieldfactors.com/blog/indexphp/a-rainwater-harvesting-system-for-zorrilla-football-stadium-valladolid>

**LAND ART STUDIO.** 28<sup>th</sup> May 2018. Juan de Austria Park renovation project synergies with the URBAN GreenUP. Both projects have similar NBS interventions (SUDs, rain garden, compacted pollinator's modules, vertical garden). We have a meeting in order to stablish synergies.



<https://www.elnortedecastilla.es/valladolid/parque-juan-austria-20180423205259-nt.html>

**IMPLUVIUM project.** From July 2018. Impluvium by iCatalist is a project where a rain collection system was designed in 4 buildings belonging to Valladolid City Council, for reuse in school gardens or the municipal orchards. This project is related to the urban farming activities in Parque Alameda and Santos-Pilarica in Valladolid. Actions developed: accompaniment to a visit to the urban gardens, presentation by the municipal technician and the management entity (INEA) which are important stakeholders to Impluvium project (water management prototype)  
[www.icatalist.eu](http://www.icatalist.eu)



**LANALAND project.** LANALAND by SBioRN is a circular economy project granted by Valladolid City Council that creates green roofs using sheep wool as a substrate. Sheep wool is currently a residue. The wool substrate acts as an insulator, is light, retains 50% water weight, is moldable, allows plants to be rooted and is biodegradable. Some planter will be located in the Green roof of El Campillo Market (see section 2.6).



Figure 3.15: Pilot planter LANALAND (Source. SBioRN)

#### ERASMUS + PROJECT “GREENSET YOUR CITY!”



This project was proposed by Jesús y María local school in Valladolid. There will be participants from Finland, Italy, Check Republic and Germany. It is a 2 years' project for the exchange of knowledge and good practices of European students by the theme of re-naturing the cities, under the URBAN GreenUP project. The scholars will receive a workshop about the URBAN GreenUP project in Valladolid. A physical visit to the interventions will be delivered (May 2020). The students will also make the design of urban architecture and nature based-solutions in the participant cities, as it will be desirable that the students could participate in any URBAN GreenUP intervention.

This project was proposed by Jesús y María local school in Valladolid. There will be participants from Finland, Italy, Check Republic and Germany. It is a 2

**INDNATUR project.** January 2018 to December 2021. A “green” European project to improve industrial parks through Nature-Based Solutions. Valladolid City Council (beneficiary) implements a pilot in the Argales Industrial Park so that this area is more sustainable from an environmental, social, economic and cultural point of view. The objective of the project is the improvement of the urban environment and air quality in industrial areas and adaptation to climate change. Another pilot project will be carried out in the Cantarias industrial park (Bragança).



industrial parks through Nature-Based Solutions. Valladolid City Council (beneficiary) implements a pilot in the Argales Industrial Park so that this area is more sustainable from an environmental, social, economic and cultural point of view. The objective of the project is the improvement of the urban environment and air quality in industrial areas and

**CENCYL VERDE project.** January 2018 to June 2021. Adaptation to climate change is the fundamental objective of the CENCYL GREEN CITIES project. It will be carried out through the planning of green infrastructure and other comprehensive measures in cities that are part of this CENCYL network: Figueira da Foz, Aveiro, Guarda, Viseu, Ciudad Rodrigo, Salamanca and Valladolid. The green economy will be boosted within the urban diversity of this cross-border area between Spain and Portugal.



#### Ciudades VERDES CENCYL

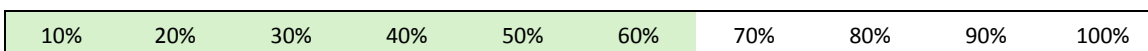
It will be carried out through the planning of green infrastructure and other comprehensive measures in cities that are part of this CENCYL network: Figueira da Foz,

#### *Creation of a Nature Based Solutions database to Valladolid.*

In progress. Valladolid City Council is working on the definition of this data base to be available for citizens (website/APP).



### 3.5.2 Implementation progress status (VAL)



### 3.5.3 Monitoring

KPIs and data collection systems for *Vac41-Support to citizen project of NBS* are the same than *Vac38-Sponsoring activities* (see section 3.2.3.).

## 3.6 City mentoring strategy

The City Mentoring Strategy of Valladolid develops two activities: Valladolid Consortium Mentors Group and Activities with stakeholders. Among those stakeholders identified to received mentoring are: Other members of the URBAN GreenUP Consortium, specially other front-runner and follower cities; other cities with interest on urban Renaturing and NBS (such as Vitoria, Madrid or Barcelona, in Spain); the academia (University of Valladolid, other international universities); private companies experts in NBS implementation; civil society and social entities; among others.

### 3.6.1 Execution of activities

The following are some mentoring activities developed in Valladolid, although there are others.

#### *Mentoring strategy activities*

Support to stakeholders (students, professionals, academia, social entities)

**PERSONAL MEETING WITH ETAYENESH ASFAW.** Valladolid, 2<sup>nd</sup> February 2018. Etayenesh works for a government agency in Washington DC. She works in the transportation division and works on reducing water runoff from the roadways of DC. We had a meeting in Valladolid to exchange experiences about NBS.

**INTERVIEW WITH UTRECH UNIVERSITY (NATURVATION project).** 1<sup>st</sup> January 2019. Interview with researchers of the Utrech University, that were working on the NATURVATION Project. The students were interested in learning more about the roles of different types of institutions and organizations with respect to the creation and development of these interventions, as well as opportunities to improve the integration of nature-based solutions in the system of planning. They were particularly interested in learning more about the influence of policies and regulations at different levels, the role of the construction sector and that of the financial sector.



**SCALE PROJECT (ERASMUS+) MEETING.** 1<sup>st</sup> February 2019. Valladolid (Spain). The objective of the SCALE project is to design, develop and validate a training program on skills related to Smart Cities, common to all disciplines that this concept comprises, including a mobility program to support the acquisition of Skills of interns in the Smart Cities area, as well as promoting the collaboration of the business world and higher education and training. In February, the Innovation Agency held a meeting with the project partners and other





stakeholders where the URBAN GreenUP project was presented and possible internships to train students in NBS implementations in Valladolid were discussed.

Figure 3.16: Participants in Scale Project meeting (Source: Valladolid City Council)

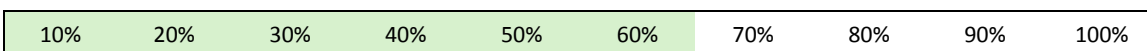
**INTERVIEW WITH UNIVERSITY OF TEXAS.** 2<sup>nd</sup> February 2019. Regina M. Buono dissertation research is trying to understand how law may shape, incentivize, slow, or impede adoption and implementation of nature-based solutions to environmental challenges in urban areas, and considers how changes in law or legal mechanisms may enhance the ability to reap the benefit of those solutions. The research uses a case study methodology employing qualitative methods of data collection and analysis to analyse the experience of actors implementing nature-based solutions. Valladolid, and its program with URBAN GreenUP, is one of the intended three case studies (along with Copenhagen and Austin, Texas).

**NBS COMMISSION – PARKS AND PUBLIC GARDENS SPANISH ASSOCIATION.** November 2019. The Nature Based Solutions Commission within the Spanish Association of Parks and Public Gardens contact with Valladolid City Council with interest in the UGU in Valladolid, especially in our monitoring results.

Other implemented activities

- Organize and participate in the Replication Webinars from WP 6. Valladolid was the front-runner city in charge of the first replication webinar that was launched on the 7<sup>th</sup> June 2018.
- Exchange of experiences and good practices with other members of the URBAN GreenUP Consortium, especially front-runner and follower cities, or the Cluster of Cities.
- Exchange of experiences and good practices with other cities on NBS. Some of the attended event-congresses are: Vitoria, Barcelona, Madrid, Zaragoza, Valladolid.
- Visit to CARTIF Foundation facilities in Boecillo (Valladolid, Spain).

3.6.2 Implementation progress status



3.6.3 Monitoring

KPI	NBS	Type of information collection system	Status of development				
			20%	40%	60%	80%	100%
CH08-02	Vac42	Analysis, statistical data	20%	40%	60%	80%	100%
CH08-03	Vac42	Analysis, statistical data	20%	40%	60%	80%	100%

Table 3.7: KPIs and data collection systems identification and status for City mentoring strategy.



KPI	KPI	Period for baseline data collection	Percentage covered
CH08-02	GREEN INTELLIGENCE AWARENESS (n° educational actions)	24 months	0%
CH08-03	GREEN INTELLIGENCE AWARENESS (inhabitants attended)	24 months	0%

Table 3.8: Baseline period and percentage covered for City mentoring strategy.

## 4 Conclusions

Valladolid demonstrative city is in the middle of the implementation phase of the NBS interventions. Valladolid work team – WP2 – is completely focused on finalizing the construction projects and reports, with the technical-economic definition of the interventions with a high level of detail, which allows launching the public tendering processes for the subcontracting of the works and implementation.

On the one hand, the implementation of the technical interventions in Valladolid is at a very close stage to begin, which will be deployed predictably in January 2020. However, since the beginning of the project various non-technical activities have been carried out, which contribute to the dissemination of the project but also to the commitment of interested parties.

So far, we are verifying that the public tendering processes are long and slow. For example, the tendering process for the first GI interventions began in December 2018 and the start of the works is planned in January 2019, almost a year later<sup>3</sup>.

The interventions related to green infrastructure (f.e. green facade, green canopies, green roof) are at a good level of progress in its implementation. All will begin work in the first half of 2020.

With regard to water management interventions, SUDs and rain gardens also have significant progress in their implementation.

However, when the implementation of the Floodable park was cancelled (October 2018), it has had consequences in the implementation of other related measures such as the Urban carbon sink, from which Valladolid City Council has to subcontract the construction project first before carrying out any construction.

Likewise, the Natural Wastewater Treatment Plant, that justified building a Sustainable park, has also experienced a delay due to the negative response in the authorization from the River Duero Basin. In this case, work is currently under way to define a new alternative, but with an obvious delay in the planned deadlines.

The implementation of independent actions, such as the Electro wetland, Bio-filter and the urban orchards activities, follow a normal course that is planned to be executed in the first half of the year 2020.

<sup>3</sup> See section 2.5. *Green infrastructure*: Green canopies and Mobile vertical gardens.





Finally, the actions related to the green corridor are in an earlier phase of implementation. The coordination between the different areas of the City Council, on which the multi-nature management of this green corridor depends, such as urban planning, mobility, parks and gardens, public spaces, innovation, among others, is complex. Currently, outsourcing of an external company that integrates all interventions into a single project is planned, which can then be tendered for its construction. This is expected to occur in late 2020.

On the other hand, the percentage of implementation of non-technical activities is generally high around 75%. However, throughout the duration of the project until 2021, more and better actions will continue to be developed to involve stakeholders such as citizens, students, academic and professionals.

The interventions monitoring will be carried out with the measurement of a KPIs set which is constantly evolving, according to the progress of the project. Currently (November 2019), a total of 57 indicators will be calculated, but in the initial planning (August 2018) they were 41. The methods of calculating KPIs are also evolving, as well as the definition of responsibilities in Valladolid Demo Team. This report reflects the low level of progress in the calculation of KPIs in Valladolid, around 20% -40%. However, most of the baseline indicators will be able to be calculated even after the implementation of the interventions, since there are historical databases (air quality, rainfall, green areas, cartography, non-technical activities, etc.). Likewise, some specific air quality monitoring systems are already operating for some of the interventions of the city center, which will also allow the baseline to be calculated.

We can conclude that the demonstrator of the city of Valladolid is in a vital phase for the real execution of the commitments acquired in the URBAN GreenUP project, whose effort will be materialized throughout the next year 2020.



## 5 References

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*URBAN GreenUP deliverable. D2.3: Technical specifications of Valladolid demo.* August 2018. Valladolid demonstration team members (WP2).

*URBAN GreenUP deliverable. D2.4: Monitoring program to Valladolid.* August 2018. Valladolid demonstration team members (WP2-WP5).

*URBAN GreenUP deliverable. D2.5: Tender documents of Valladolid demo.* September 2018. Valladolid demonstration team members (WP2).

### **Legislation**

Water law (Royal Decree 1/2001 de 20<sup>th</sup> July)

Royal Decree 849/86, 11<sup>th</sup> April, approving the regulation of the Public Hydraulic Domain)

Royal Decree 1620/2007 7<sup>th</sup> December, establishing the legal regime for the reuse of cleanwater.

