

| STAR2CS INTERREG PROJECT |

# THE OISE VALLEY :

## WHAT FORMS OF RESILIENCE TO ADDRESS FLOODING?

Oise-les-Vallées Urban Planning Agency  
November 2019

PART

1

SITE-SPECIFIC RESILIENCE  
ANALYSIS

RESILIENCE  
GUIDELINES

7

ALLOTMENTS  
AT CREIL

# [ P R E A M B L E ]

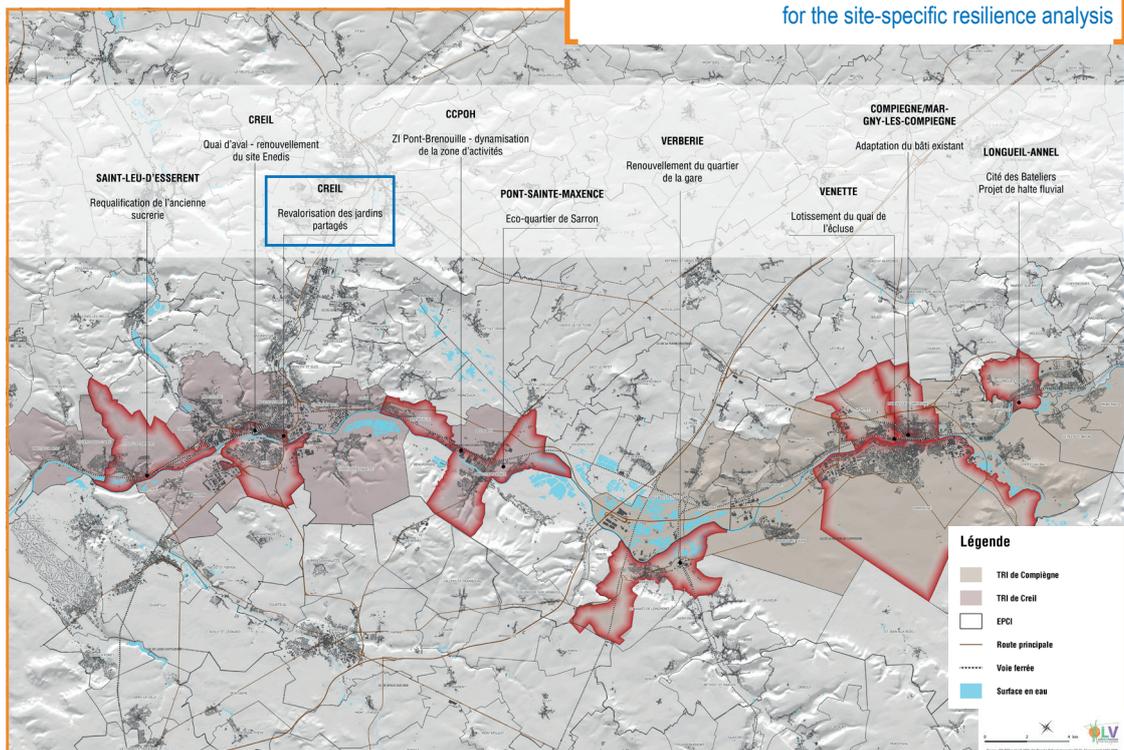
The Oise-les-Vallées Urban Planning Agency began assessing the valley's resilience to flood risk for the European Interreg STAR2Cs Project. The aim of the agency's involvement in this European project is to give further consideration to explore local development and spatial planning opportunities to address flood risk. To achieve this, three steps are currently being researched:

- 1 **Town planning resilience:** How can sites in flood-prone areas, subject to additional restrictions from differing stakeholder opinions, be planned and developed.
- 2 As individual flood resilience plans do not cover that of an entire region, step two focuses on a larger scale, especially **the resilience of roads and utilities** that keep the region up and running.
- 3 Finally, the agency wants to introduce a **methodological decision-making tool designed for various planning stakeholders** (councillors, technicians, developers, private individuals, etc.) to support the regional planning and development process.

With support from Architect, Éric Daniel-Lacombe, the urban planning agency produced nine case studies located along the Oise Valley during the first part of the project.

Using these nine case studies, the aim is to produce an overall development plan for the Oise Valleys area, based on geography, landscapes as well as land-use and economic activity, not forgetting mobility, which is the key topic in this particular area. The development plan is, and will be, adaptable and incremental. It will help foster a collective awareness of the regional resilience process with respect to flooding.

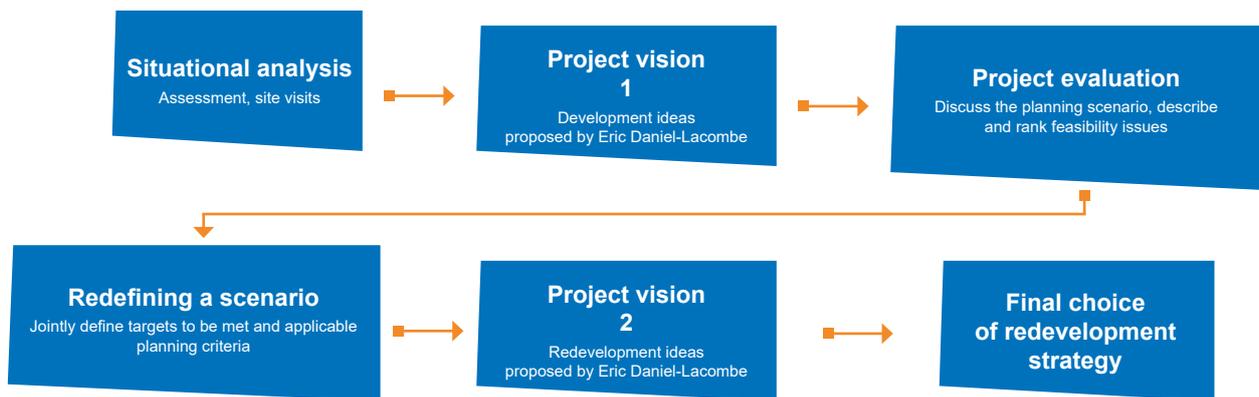
Study site locations for the site-specific resilience analysis



Given the major waterway project to connect the Seine and Escaut rivers with the Seine-Nord Europe Canal and dredging/re-profiling the River Oise to meet European standards (MAGEO), the mid-Oise area has a chance to forge a unique identity for itself to the north of the Ile de France region, while adapting to climate change.

We have devised development scenarios for each of the nine case study situations that provide a fresh, new insight. A series of initial development scenarios for each site was presented to the relevant stakeholder then revised to provide a new version incorporating feedback and analysis (often contradictory). Each scenario is intended to become a potential vision to transform the site in question by seeking to make it less vulnerable to flood risks.

[ Adopted approach ]



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# 1

## SITE PRESENTATION & CHALLENGES



### Presentation of local area



The town of Creil has a population of roughly 35,000 people and is in the south of the Department of Oise, close to the Ile-de-France Region and Paris Charles de Gaulle Airport.

It has dense transport infrastructure and communication networks making it highly accessible and dynamic for trade with the cities and conurbations of Northern France. Strategically located on the banks of the River Oise, Creil's position as an interconnected town will be further boosted by the forthcoming MAGEO Project and the planned Picardie-Roissy rail link.

Creil has a diverse urban fabric, comprising mixed land-use town centre districts on the right bank and multi-family housing on the left. The town also boasts prolific heritage stemming from the area's declining industrial activity.

There are plans to develop several projects on these brownfield sites, such as the Gare Cœur d'Agglo and the Ec'eau inland port.

### Site issues



The town of Creil has put forward the site for allotments south of the Auchan Creil/ Nogent-sur-Oise retail park. The site is sandwiched between the retail park, the D1016 and an area of private housing. Most of it is classified red for one-hundred year flood risk.

The challenge for the project is to convert this area to form a transition between the town and countryside. Currently, the site has a scattering of allotments and is being considered as a zone reserved for future development in the Local Plan. It is also crossed by a former arm of the La Brèche River that meets the Oise a little further south.

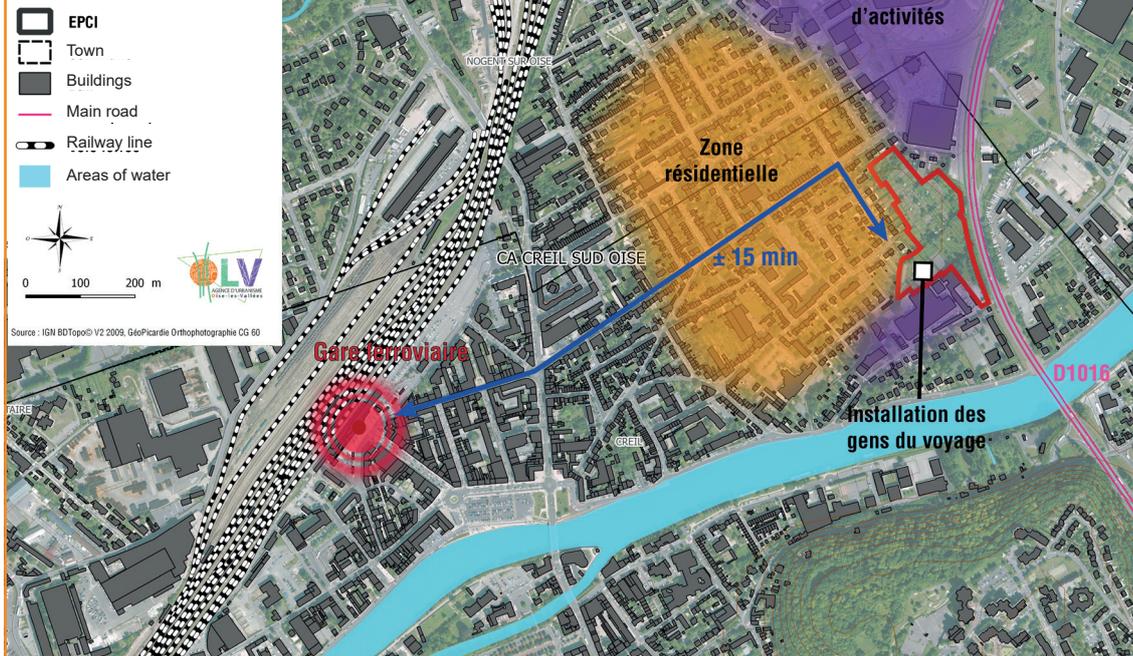
### Challenges and goals

Use the site to introduce and teach the residents about flood hazards. Foster a risk-awareness culture

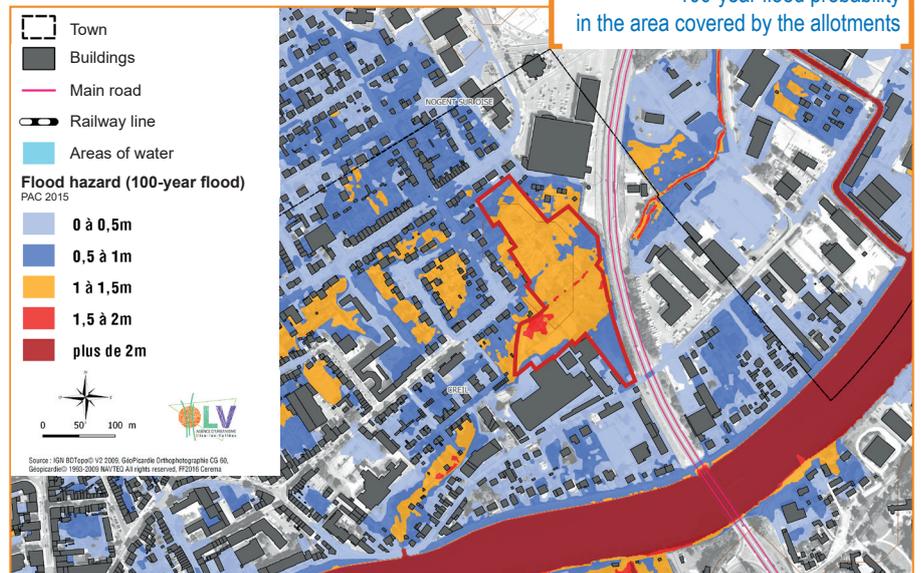
Improve this green space, right in the town centre



Site location in the town of Creil



The flood hazard map modelled in 2015 on 100-year flood events shows the entire site to be at a high to very high flood risk (water depths of 1 - 2.5 m). The flood hazard risk is higher in the middle of the site than at the edges. As such, water collecting and pooling on the site must be considered when flood waters rise and recede.



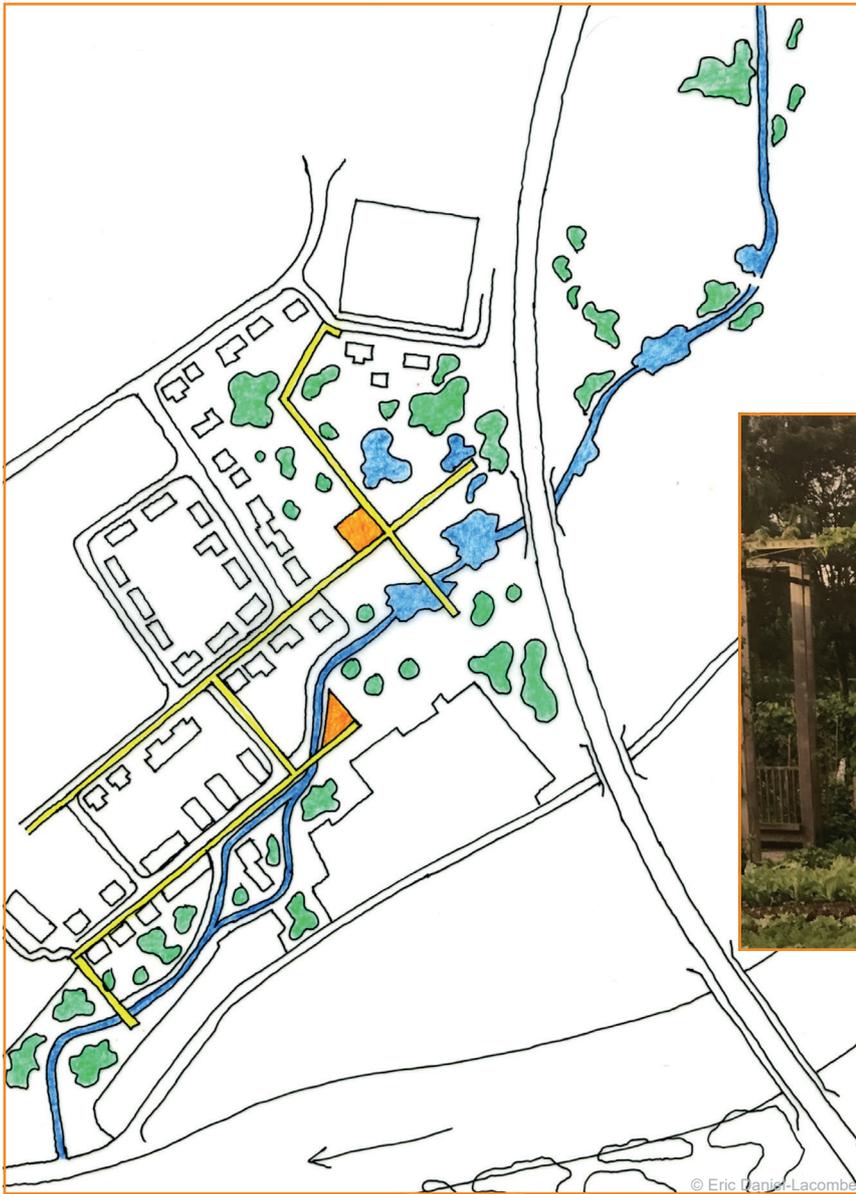
100-year flood probability in the area covered by the allotments

Summary of stakeholder positions



Stakeholder	Local authority	State
Main priority	Redevelop the site to provide allotments	Minimise flood-related risks
Priority impact	Use of undeveloped municipal land	Site listed in red flood-risk zone
Priority-related risk	Building homes and amenities in flood-prone areas	Site cannot be built on
Risk effect	Increasing vulnerability	Land assets are frozen with no development options

# 2 DEVELOPMENT PROPOSALS



NB: All images featured on this page are taken from the presentation by Eric Daniel-Lacombe at a workshop on 2 April 2019, entitled *Inventive analysis for Oise-les-Vallées*



## THE ARCHITECT'S OPINION

Eric Daniel-Lacombe



© Eric Daniel-Lacombe

The site is located in the centre of Creil and the town council is already actively engaged with the Oise les Vallées Urban Planning Agency to propose two study sites (one urban and one undeveloped). The first case study at Creil is the most 'natural' of the two. It looks a little abandoned and is currently used by local people for allotments.

This sense of neglect comes from the fact that the land is sandwiched between two housing estates. There are detached houses on one side, while commercial warehouses and related car parks can be seen on the other. You would hardly know there was a river there. The outlines of the warehouses and the raised road, as you approach the Oise, hide the water. Yet, the scattered allotments descend all the way down to the river's right bank. Just like the commercial warehouses, the houses are regularly flooded. The idea is therefore to gather the allotments together to form a 'watercourse' or tributary that will channel water to the river in wet weather. These new river gardens to be 'dug in' could also be a pleasant place for local residents as this water course would cross the fields lending the area to numerous activities. In addition, if a few huts for storing garden tools were built on raised platforms and linked by walkways, a few huts could also be built for local residents providing better protection from the flood waters than in their homes.

The intuition behind this transformation relies on an analysis of conflicting roles in the rituals of daily life. This must be uppermost in the architect's mind and that the project clearly demonstrates the attention paid to local community life. This dimension is needed so the

community is not only receptive to each other but also to feel the architects, contracting and public authorities value them and are attentive to their needs.

These field gardens crossed by the river could become a landscape feature for the local area, or a common asset where the presence of water is desirable rather than feared:

- but how can water be reintroduced?
- in what direction will it flow?
- what slope angle will be used to regulate the flow?

There are many questions concerning the entire valley based on considerations given to our cluster of study sites. It is difficult to assess slope gradient on the site, especially when gradients are gentle. The presence of houses, warehouses and roads can prevent people from 'reading' the valley and the direction in which the water flows. Indeed, the valley slopes have become largely split up, residual and encircled by built-up areas. That said, hope is at hand in the extensive community garden on seemingly flat land. During the workshops, we found that the old La Brèche River, a tributary of the Oise, once flowed gently down through the town to the main river.

The idea of reinstating these tributaries is key as they can help control the flow of water and look attractive too. Earthwork operations can create new mounds and hollows to collect water and provide a new course for a tributary along the old riverbed. The peaks and hollows of this new community garden will become the starting point for a community asset designed to be the centre of a housing block shared by many residents. The surrounding houses are mostly built directly at ground level and are consequently flood-prone. The new garden

can have raised, waterproof shelters resembling garden sheds. They can be used by the future gardeners who enjoy coming to the site and by local residents caught out by flood waters. The walkways could be seen from the pavements leading to the housing estate, as an evacuation route to a secure shelter.

The network of walkways is designed to look like a large grid, with a raised flood shelter for residents at each intersection. This shared space, together with the huts, will become a large garden area in the town, with a river flowing through it and into the Oise, with a few houses built around the edges. These new houses must be both inventive in their design and not impede flood waters at ground floor-level, while providing safe, secure living space on the first floor. About fifteen houses could be built to become examples of flood-resilient design for all to see. The fields gently open out to provide a route for the ebb and flow of flood waters to and from the Oise without creating any areas of standing water.

The flood hazard map would be transformed. The pavements accompanied by raised walkways would switch from red to white (flood-free) while the garden areas would change from orange (moderate-risk) to red (very wet) to collect and store more water. This new layout for water flow would also allow a few additional houses to be built in a neighbourhood with peace of mind in terms of flood risk.



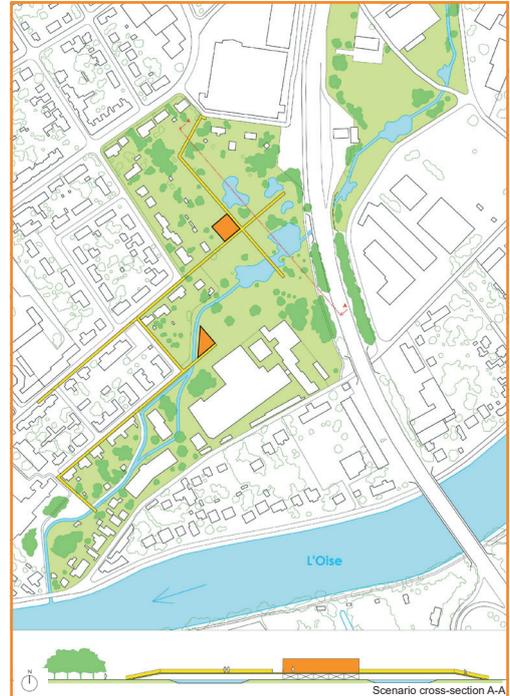
# VERSION 1

In his initial proposal, Eric Daniel-Lacombe tried to connect this under-used space to its immediate surroundings. This proposal was based on reinstating the La Brèche River to flow into the Oise just a little further south.

Key to this development are the multi-purpose hut-shelters that can be used by local people in a crisis but also for community use in normal conditions.

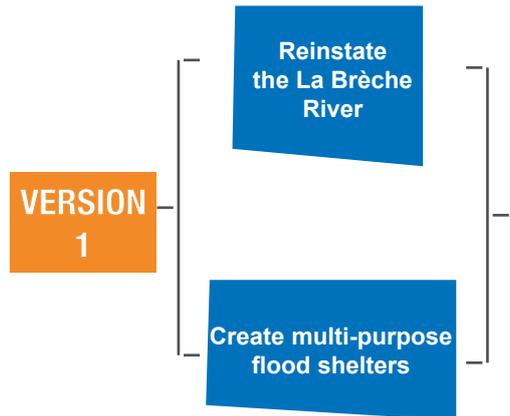


© Eric Daniel-Lacombe



Scenario cross-section A-A  
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## PRINCIPLES





**VERSION 2**

This proposal was presented at a second workshop and a bilateral meeting to fine-tune the outcomes. Following these discussions, the municipality approved the project concept but requested the addition of a series of buildings along the Rue Charles Somasco

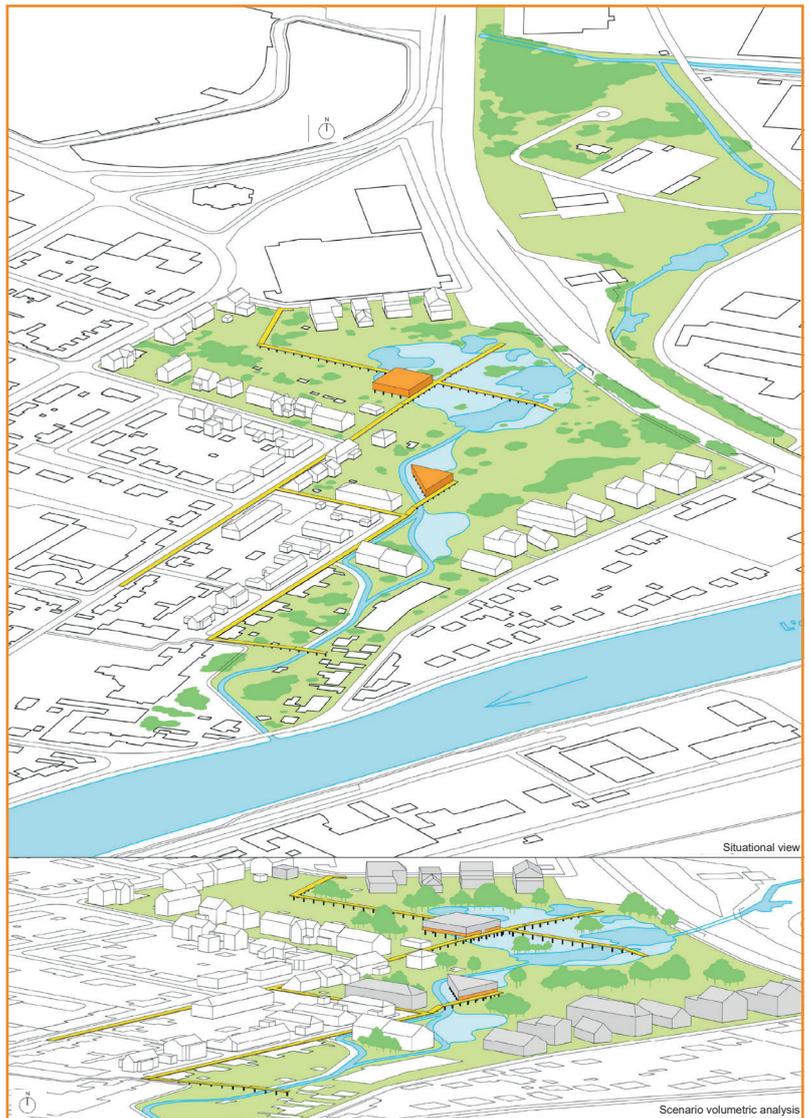


Scenario cross-section A-A  
© Eric Daniel-Lacombe

**LIMITATIONS**

Need to include all the buildings in the Rue Samasco

**VERSION 2**



Situational view

Scenario volumetric analysis

© Eric Daniel-Lacombe

# 3 PROJECT EVALUATION & FEASIBILITY

Both versions proposed by Éric Daniel-Lacombe seek to avoid a certain number of detrimental effects in the event of a flood. Each of them lessens or eliminates potential damage and is likely to generate benefits for the local area, or even the entire town. In most cases, however, these risk reduction measures are not cheap, in financial, technical or human resource terms.

## SWOT analysis

WITHIN THE PROJECT	OUTSIDE THE PROJECT
<b>STRENGTHS</b> Positive aspects justifying project benefits	<b>OPPORTUNITIES</b> Aspects to capitalise on the project environment
<ul style="list-style-type: none"> <li>• Neighbourhood less vulnerable by the addition of flood shelters that can be reached from the housing blocks, using non-motorised transport</li> <li>• Dual purpose of a pleasant, shared garden in dry weather and a flood shelter when waters rise</li> <li>• Rekindling the site's past history by reinstating allotments</li> </ul>	<ul style="list-style-type: none"> <li>• The houses face the community garden, which becomes a space where residents can express and reacquaint themselves with key water-related features such as rose beds</li> </ul>
<b>WEAKNESSES</b> Negative aspects to be improved	<b>THREATS</b> Obstacles that may impede project development
<ul style="list-style-type: none"> <li>• Project is technically challenging to deliver, especially reopening the La Brèche river</li> </ul>	<ul style="list-style-type: none"> <li>• No common ground with the La Brèche river catchment joint association which is working to reopen water courses.</li> </ul>

The SWOT analysis combines the project's strengths and weaknesses with surrounding opportunities and threats to help define a development strategy.

## Advantages / Disadvantages by stakeholder

	Advantages	Disadvantages
Local authority	Facilitating crisis management during a flood event	Project relatively expensive
State	Reducing vulnerability in the local area	Reopening the La Brèche river is potentially at odds with the PPRI regulations
Users/Residents	Opportunity to benefit from an outstanding "nature corridor" in their town, from the station exit Chance to enjoy a place for socialising together in shared spaces	-

## Methodological details

### Resilience indicators

Several aspects must be specified in terms of resilience indicators.

Firstly, it should be noted that the 5 criteria defined to study project resilience were proposed by Oise les Vallées and are the result of its methodological choice alone. We have identified:

1. **An environmental benefit:** The project offers an environmental advantage by respecting nature and preserving biodiversity, etc.
2. **A social benefit:** The project offers a social and human advantage inasmuch as it provides a service to its users and improves the quality of life for the local community
3. **An operational benefit:** The project offers an operational advantage, making buildings technically capable of resisting floods and able to cope with flood hazards, etc.
4. **An economic benefit:** The project offers an economic advantage in its ability to generate income, to attract business and retail while fostering tourism, etc.
5. **Scenic benefits:** The project can slip seamlessly into the local area by considering the specific features of each area and delivering aesthetic benefits, etc.

### Explanation of the choice of scoring system

The scenarios were scored on a scale of 1 to 10, with 0 being the lowest score and 10 the highest.

The choice of scoring method is clearly subjective and is in no way definitive. The aim is partly to trigger discussion and reactions.

Score	Category
1-2	Very poor
3-4	Poor
5-6	Fair
7-8	Good
9-10	Very good

The purpose of the scoring system is to compare the three chosen development scenarios:

- The first corresponds to the current position. This refers to the state of the land as it is now, prior to any development taking place.
- The second corresponds to a hypothetical planning scenario where flood risk has not been considered. As such, this refers to development plans that comply with current urban development guidelines but which do not prioritise resilience.
- The third scenario is proposed by Eric Daniel-Lacombe and featured above.

## Aspects to consider for resilience

Benefits	environmental	social	operational	economic	scenic
Scenario 1 "Current situation"	1	3	6	3	5
Scenario 2 "Ignoring the risk"	3	7	5	6	6
Scenario 3 "Eric Daniel-Lacombe"	9	9	7	6	9

## Level of satisfaction

Private individual	State	Local authority
2	6	2
6	6	6
9	8	8

